# Preface

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Version 1.0

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## Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

## Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

## Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

## About the Manual

The manual consists of the following:

**Chapter 1**
**Introducing the Motherboard**
Describes features of the motherboard.
Go to ⇨ page 1

**Chapter 2**
**Installing the Motherboard**
Describes installation of motherboard components.
Go to ⇨ page 7

**Chapter 3**
**Using BIOS**
Provides information on using the BIOS Setup Utility.
Go to ⇨ page 27

**Chapter 4**
**Using the Motherboard Software**
Describes the motherboard software
Go to ⇨ page 49

**Chapter 5**
**ATI Crossfire™ Technology Support**
Describes the ATI Crossfire™ Technology
Go to ⇨ page 53

**Chapter 6**
**Intel® Matrix Storage Manager RAID Configurations**
Describes the Intel® Matrix Storage Manager RAID Configurations
Go to ⇨ page 57

**Chapter 7**
**NVIDIA® Hybrid SLI® Technology Support**
Provides information about SATA RAID Setup
Go to ⇨ page 63

**Chapter 8**
**Setting Up eJIFFY**
Describes the eJIFFY setting up
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**Trouble Shooting**
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## Memo

# Chapter 1
# *Introducing the Motherboard*

## Introduction

Thank you for choosing the P55H-A SLI motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA1156 socket for Intel® LGA1156 Core i7/i5/i3/Pentium processor for high-end business or personal desktop markets.

This motherboard is based on Intel® P55 Express Chipset for best desktop platform solution. P55 is a single-chip, highly integrated, high performance Hyper-Threading peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 16 GB of system memory with dual channel DDR3 1333/1066 MHz. Two PCI slots are supported, fully compliant with PCI rev 2.3 specification at 33MHz. High resolution graphics via two PCI Express slots, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 2.0. Additionally, one PCI Express x4 slot is supported, fully compliant to the PCI Express Base Specificaiton. It implements an EHCI compliant interface that provides fourteen USB 2.0 ports (eight USB ports and three USB 2.0 headers support additional six USB ports). It supports the ATI CrossFire™ Technology and NVIDIA SLI that allows you to install two GPU graphics cards. It also supports Intel® Matrix Storage Technology, providing both AHCI and RAID 0, 1, 5 and 10 configuration.

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, one CLR_CMOS button, one eSATA ports, one LAN port, eight USB ports, one optical SPDIFO port and audio jacks for microphone, line-in and 8-ch line-out.

In addition, this motherboard comes with an LED for debug, a power on button and a reset button. The processor can be overclocked when *CPU Over-clocking Func.* is set to *Enabled* in M.I.B.III (MB Intelligent BIOS III).

# Feature

## Processor

The motherboard uses an LGA1156 type of socket that carries the following features:

- Accommodates Intel® LGA1156 Core i7/i5/i3/Pentium processor
- Supports “Hyper-Threading” technology CPU

“Hyper-Threading” technology enables the operating system into thinking it’s hooked up to two processors, allowing two threads to be run in parallel, both on separate “logical” processors within the same physical processor.

## Chipset

The Intel P55 Express Chipset is a single-chip with proven reliability and performance.

- Support Intel® Matrix Storage Technology, providing both AHCI and RAID 0, 1, 5 and 10 configuration.
- Two x16 PCI Express Gen2 ports each supporting up to 8 GB/s direction peak bandwidth
- An additional x4 PCI Express Gen1 port configuration to 2 x2 interface
- Compliant with PCI Rev 2.3 interface at 33 MHz
- Integrated SATA 3.0 Gb/s Host Controller
- Fourteen USB 2.0 ports supported
- Serial Peripheral Interface (SPI) support
- Enhanced DMA Controller, interrupt controller, and timer functions

## Memory

- Supports DDR3 1333/1066 DDR3 SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- Up to 4 GB per DIMM with maximum memory size up to 16 GB
- Supports 1 Gb, 2 Gb and 4 Gb DDR3 DRAM technologies for x8 and x16 devices (It is not recommended to use 512 Mb DDR3 memory device on this motherboard)

## Audio

- 7.1 + 2 channel High Definition Audio Codec
- All DACs Support 192k/96k/48k/44.1kHz DAC sample rate
- High –quality analog differential CD input
- Meets Microsoft WHQL/WLP 3.0 audio requirements
- Direct Sound 3D™ compatible

## Onboard LAN

- Supports PCI Express™ 1.1
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

## Expansion Options

The motherboard comes with the following expansion options:

- Two PCI Express x16 slots for Graphic Interface
- One PCI Express x4 slot
- One PCI Express x1 slots
- Two 32-bit PCI v2.3 compliant slot
- Six 7-pin SATA connectors
- One IDE connector supporting up to two IDE devices

## Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One CLR_CMOS button
- One eSATA port
- One LAN port
- Eight USB ports
- One optical SPDIFO port
- Audio jacks for microphone, line-in and 8-ch line-out

## BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing
- ECS M.I.B.III BIOS

The firmware can also be used to set parameters for different processor clock speeds.

*1. Some hardware specifications and software items are subject to change without prior notice.*

*2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50 ° C.*

## Special Features

**Intelligent Power Saving (IPS)**
Equipped with IPS indicator to indicate advanced power system that provides better energy efficiency for Intel® processors. The energy can be greatly saved during idle operation or other low load conditions which can be confirmed through IPS indicator.

**4E Innovation**

4E innovation representing "Easy Attach", "Easy Button" ""Easy Clear" and "Easy Debug", P55H-A SLI provides great convenience for system installation and performance tweaking that meets the demand from hardware extremists.

## Specifications

| | |
|---|---|
| CPU | • LGA1156 socket for latest Intel® LGA1156 Core i7/i5/i3/ Pentium processor<br>• Supports “Hyper-Threading” technology CPU |
| Chipset | • Intel P55 Express Chipset |
| Memory | • Dual-channel DDR3 memory architecture<br>• 4 x 240-pin DDR3 DIMM sockets support up to 16 GB<br>• Supports DDR3 1333/1066 DDR3 SDRAM |
| Expansion Slots | • 2 x PCI Express Gen2 x16 slots<br>• 1 x PCI Express x1 slot<br>• 1 x PCI Express x4 slot<br>• 2 x PCI slot |
| Storage | • Supported by Intel P55 Express Chipset<br>• 6 x Serial ATA 3.0 Gb/s Host Controllers<br>• Supports RAID 0, 1, 5 and 10<br>• Support by JMicron® JMB361<br>• 1 x eSATA 3.0 Gb/s device |
| Audio | • Realtek ALC 888S supports 7.1 channel HD audio |
| Giga LAN | • RTL8111DL PCIE GigaLAN Controller |
| Rear Panel I/O | • 1 x PS/2 keyboard & PS/2 mouse connector<br>• 1 x CLR_CMOS button<br>• 1 x eSATA port<br>• 8 x USB ports<br>• 1 x RJ45 LAN connector<br>• 1 x Audio port (Line in, microphone in, line out, and optical SPDIF out) |
| Internal I/O Connectors & Headers | • 1 x 24-pin ATX Power Supply connector, 8-pin 12V connector & ATX4P connector<br>• 6 x Serial ATA connectors<br>• 3 x USB 2.0 headers support additional 6 USB ports<br>• 1 x Clear CMOS header<br>• 1 x Front panel header<br>• 1 x PWR & RST button<br>• 1 x COM header<br>• 1 x SPDIF out header<br>• 1 x Front panel audio header<br>• 1 x CD_In header<br>• CPU_FAN/SYS_FAN/PWR_FAN/CASE_FAN connectors |
| System BIOS | • AMI BIOS with 16Mb SPI ROM<br>• Supports Plug and Play 3.0, APM 1.2, Multi Boot, DMI<br>• Supports ACPI revision 1.0 specification |
| Form Factor | • ATX Size, 305mm x 244mm |

## Motherboard Components

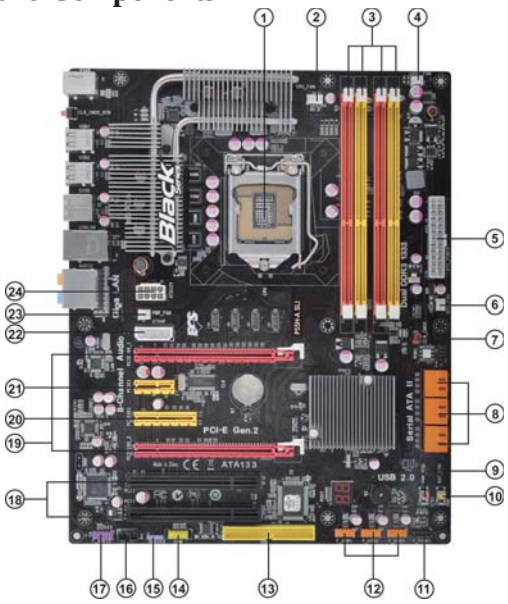



***Table of Motherboard Components***

| LABEL | COMPONENTS |
|---|---|
| 1. CPU Socket | LGA1156 socket for Intel® LGA1156 Core i7/i5/i3/Pentium processor |
| 2. CPU_FAN | CPU cooling fan connector |
| 3. DDR3_1~4 | 240-pin DDR3 SDRAM slots |
| 4. CASE_FAN | Case cooling fan connector |
| 5. ATX_POWER | Standard 24-pin ATX power connector |
| 6. SYS_FAN | System cooling fan connector |
| 7. CLR_CMOS | Clear CMOS jumper |
| 8. SATA1~6 | Serial ATA connectors |
| 9. PWR_BTN | Power on button |
| 10. RST_BTN | Reset button |
| 11. F_PANEL | Front panel switch/LED header |
| 12. F_USB1~3 | Front panel USB headers |
| 13. IDE | Primary IDE connector |
| 14. COM | Onboard serial port header |
| 15. SPDIFO | SPDIF out header |
| 16. CD_IN | Analog audio input connector |
| 17. F_AUDIO | Front panel audio header |
| 18. PCI1~2 | 32-bit add-on card slot |
| 19. PCIE16X_1~2 | PCI Express slots for graphics interface |
| 20. PCIE4X1 | PCI Express x4 slot |
| 21. PCIE1 | PCI Express x1 slot |
| 22. ATX4P | Auxiliary power connector for graphics card |
| 23. PWR_FAN | Power cooling fan connector |
| 24. ATX12V | 8-pin +12V power connector |

This concludes Chapter 1. The next chapter explains how to install the motherboard.

# Chapter 2
# *Installing the Motherboard*

## Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

## Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the ATX system case. Some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

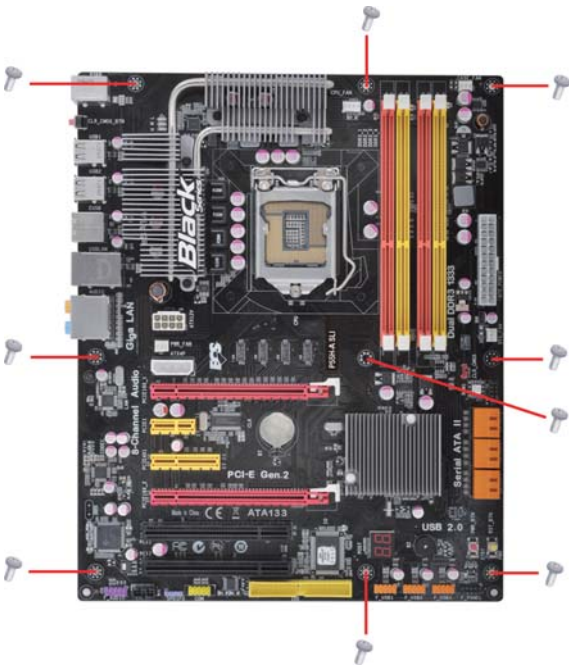
This motherboard carries an ATX form factor of 305 x 244 mm. Choose a case that accommodates this form factor.

## Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.




*Do not over-tighten the screws as this can stress the motherboard.*

## Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

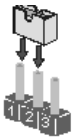
### *Setting Jumpers*

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

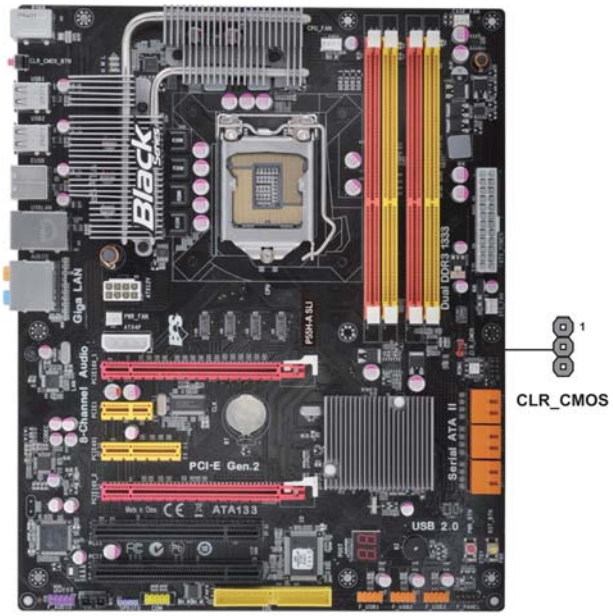
**SHORT** **OPEN**

This illustration shows a 3-pin jumper. Pins 1 and 2 are SHORT.



### *Checking Jumper Settings*

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.




### *Jumper Settings*

| Jumper | Type | Description | Setting (default) | |
|---|---|---|---|---|
| **CLR_CMOS** | 3-pin | Clear CMOS | 1-2: NORMAL<br>2-3: CLEAR CMOS<br>Before clearing the CMOS, make sure to turn off the system. | 1<br>CLR_CMOS |

*To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".*

# Installing Hardware

## *Installing the Processor*

*Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.*

*On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.*

*Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.*

### Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

*Warning:*

*1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*

*2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.*

This motherboard has an LGA1156 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

### Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.

2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.

3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.

4. The BIOS returns to the default setting by itself.

## CPU Installation Procedure

The following illustration shows CPU installation components.

A. Opening of the Load Plate
- Put your thumb on the tail of the load plate and press the tail down.
- Rotate the load plate to fully open position.

B. Disengaging of the Load Lever
- Hold the hook of lever and pull it to the left side to clear retention tab.
- Rotate the load lever to fully open position.

C. Removing the Cap
- Be careful not to touch the contact at any time.

D. Inserting the Package
- Grasp the package. Ensure to grasp on the edge of the substrate.
- Make sure pin 1 indicator is on your bottom-left side.
- Aim at the socket and place the package carefully into the socket by purely vertical motion.

E. Closing the Load Plate
- Rotate the load plate onto the package IHS (Intergraded Heat Spreader).
- Engage the load lever while pressing down lightly onto the load plate.
- Secure the load lever with the hook under retention tab.

F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.

G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.

*1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/ heatsink supplied. The form and size of fan/heatsink may also vary.*

*2. DO NOT remove the CPU cap from the socket before installing a CPU.*

*3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1156 socket.*

## *Installing Memory Modules*

This motherboard accommodates four memory modules. It can support four 240-pin DDR3 1333/1066. The total memory capacity is 16 GB.

### DDR3 SDRAM memory module table

| Memory module | Memory Bus |
|---|---|
| ***DDR3 1066*** | ***533 MHz*** |
| ***DDR3 1333*** | ***667 MHz*** |

You must install at least one module in any of the four slots. Total memory capacity is 16 GB.

The four DDR3 memory sockets (DDR3_1, DDR3_2, DDR3_3 and DDR3_4) are divided into two channels and each channel has two memory sockets as following:

- Channel A: DDR3_1, DDR3_2
- Channel B: DDR3_3, DDR3_4

### Recommend memory configuration

| Mode | Sockets | | | |
|---|---|---|---|---|
| | DDR3_1 | DDR3_2 | DDR3_3 | DDR3_4 |
| 2 DIMMs | - | Populated | - | Populated |
| 3 DIMMs | | Populated | Populated | Populated |
| 3 DIMMs | Populated | Populated | | Populated |
| 4 DIMMs | Populated | Populated | Populated | Populated |

*Due to Intel CPU spec definition, the system will not boot if only one DIMM is installed in DDR3_1 or DDR3_3. Follow the table above for recommended memory configuration.*

*1. For best performance and compatibility, we recommend that users give priority to the yellow DIMMs (DDR3_2/DDR3_4) when installing DIMMs.*

*2. We suggest users not mix memory type. It is recommended to use the same brand and type memory on this motherboard.*

*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

## Installation Procedure

Refer to the following to install the memory modules.

1. This motherboard supports unbuffered DDR3 SDRAM .
2. Push the latches on each side of the DIMM slot down.
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6. Install any remaining DIMM modules.

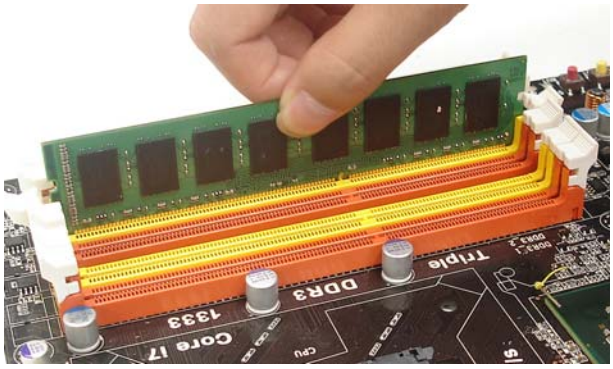


**Table A: DDR3 (memory module) QVL (Qualified Vendor List)**

The following DDR3 1800/1600/1333/1066 memory modules have been tested and qualified for use with this motherboard.

| Type | Size | Vendor | Module Name |
|---|---|---|---|
| DDR3 1066 | 512 MB | ELPIDA | PC3-8500U-7-00-AP |
| | | Hynix | HYMT164U64ZNF8-G8 AA |
| | | Micron | MT4JTF6464AY-1G1B1 |
| | 1 GB | A-data | M3OSS3H3I3120B5Z |
| | | Aeneon | AEH760UD00-10FA98X |
| | | Corsair | CM3X1024-1066C7 |
| | | Hynix | HMT112U6AFP8C-G7N0 AA |
| | | Kingston | KVR1066D3N7/1G |
| | | Micron | MT8JTF12864AY-1G1D1 |
| | | | MT8JTF12864AZ-1G1F1 |
| | | Qimonda | IMSH1GU03A1F1C-10G B2S81427034 |
| | | | IMSH1GU03A1F1C-10F B2S81427023 |
| | | Samsung | Golden Bar M378B2873DZ1-CF8 0818 |
| | | Unifosa | GU502202EP0200 |
| | 2 GB | Elixir | M2Y2G64CB8HA9N-BE 0922.TW |
| | | Hynix | HMT125U6AFP8C-G7N0 AA |
| | | Micron | MT16JTF25664AY-1G1D1 |
| | | | MT16JTF25664AY-1G1D1 |
| | | | MT16JTF25664AZ-1G1F1 |
| | | Qimonda | B3S81427044 |
| | | | B3S81528005 |
| | | Samsung | M378B5673DZ1-CF8 0842 |
| | | Unifosa | GU512302EP0200 |
| | 4 GB | Kingston | KVR1066D3N7/4G 9905403-028.A00LF |
| DDR3 1333 | 1 GB | A-data | AD31333001GOU(AD63I1A08) |
| | | Apacer | 78.01GC6.9L0 |
| | | Hynix | HMT112U6AFP8C-H9N0 AA |
| | | Kingston | KVR1333D3N9/1G |
| | | Micron | MT8JTF12864AY-1G4D1 |
| | | | MT8JTF12864AZ-1G4F1 |
| | | Qimonda | IMSH1GU13A1F1C-13H |
| | | Samsung | M378B2873DZ1-CH9 |
| | | | M378B2873EH1-CH9 |
| | | Unifosa | GU502203EP0200 |

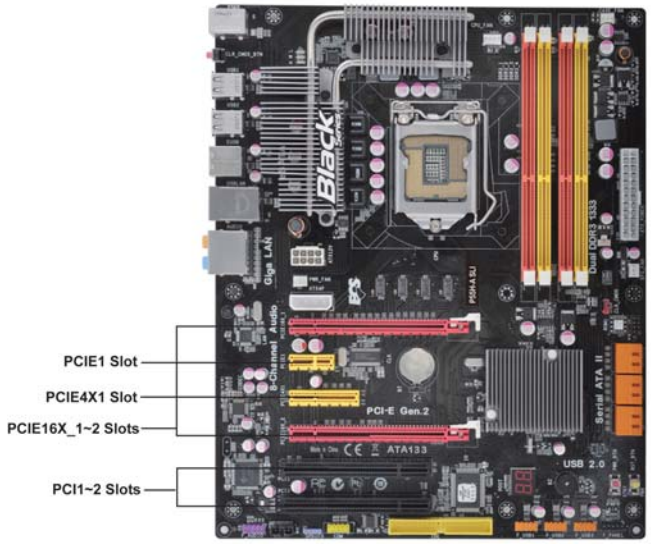
| Type | Size | Vendor | Module Name |
|---|---|---|---|
| DDR3 1333 | 2 GB | Elixir | M2F2G64CB8HA4N-CG 0903.TW |
| | | | M2Y2G64CB8HA9N-CG 0920.TW |
| | | | M2Y2G64CB8HA9N-DG 0928.TW |
| | | Hynix | HMT125U6AFP8C-H9N0 AA |
| | | Kingston | KVR1333D3N9/2G |
| | | Micron | MT16JTF25664AY-1G4D1 |
| | | Qimonda | B3S81124001 |
| | | Samsung | M378B5673EH1-CH9 |
| | | Unifosa | GU512303EP0200 |
| DDR3 1600 | 1 GB | Kingston | KHX12800D3K3/3GX |
| DDR3 1800 | 1 GB | Kingston | KHX14400D3K3/3GX |

*User please be noted that DDR3 1800/1600 MHz is validated to run at 1333Mhz only. Suggest to use XMP module and ECS MIB II BIOS for better performance.*

*Expansion Slots*

## Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.




**PCIE4X1 Slot** The PCI Express x4 slot is fully compliant to the PCI Express Base Specification revision 2.0.

**PCI1~2 Slots** This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

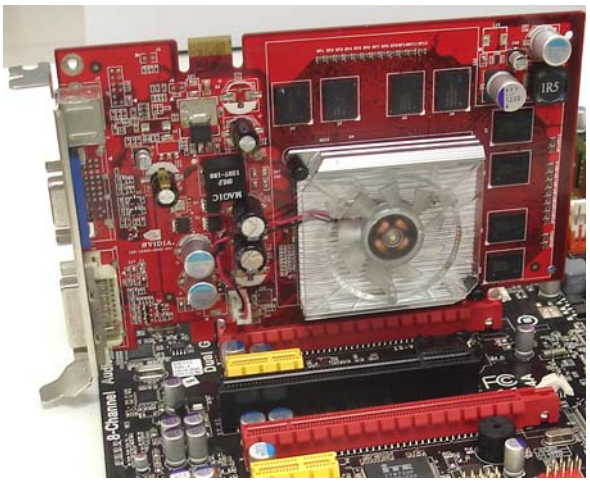
**PCIEX16_1~2 Slots** The PCI Express x16 slots are used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 2.0. For CrossFire™ information please refer to Chapter 5.

**PCIE1 Slots** The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.1.

*Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.*

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.

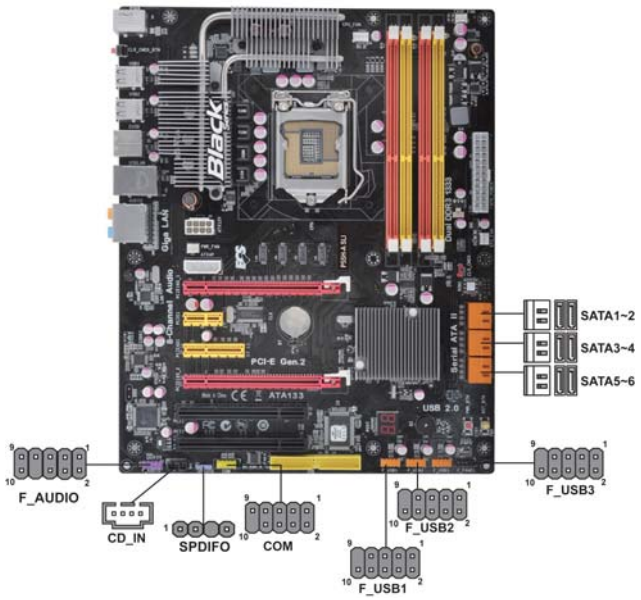


*1. For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.*

*2. The onboard PCI interface does not support 64-bit SCSI cards.*

### *Connecting Optional Devices*

Refer to the following for information on connecting the motherboard's optional devices:




#### F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | PORT 1L | 2 | AUD_GND |
| 3 | PORT 1R | 4 | PRESENCE# |
| 5 | PORT 2R | 6 | SENSE1_RETURN |
| 7 | SENSE_SEND | 8 | KEY |
| 9 | PORT 2L | 10 | SENSE2_RETURN |

#### SATA1~6: Serial ATA connectors

These connectors are used to support the Serial ATA devices for the highest data transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | Ground | 2 | TX+ |
| 3 | TX- | 4 | Ground |
| 5 | RX- | 6 | RX+ |
| 7 | Ground | - | - |

### F_USB1~3: Front Panel USB headers

The motherboard has eight USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | USBPWR | Front Panel USB Power |
| 2 | USBPWR | Front Panel USB Power |
| 3 | USB_FP_P0- | USB Port 0 Negative Signal |
| 4 | USB_FP_P1- | USB Port 1 Negative Signal |
| 5 | USB_FP_P0+ | USB Port 0 Positive Signal |
| 6 | USB_FP_P1+ | USB Port 1 Positive Signal |
| 7 | GND | Ground |
| 8 | GND | Ground |
| 9 | Key | No pin |
| 10 | USB_FP_OC0 | USBOC- |

*Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.*

### CD_IN: Analog Audio Input connector

| Pin | Signal Name | Function |
|---|---|---|
| 1 | CD_L | CD In left channel |
| 2 | GND | Ground |
| 3 | GND | Ground |
| 4 | CD_R | CD In right channel |

### SPDIFO: SPDIF out header

This is an optional header that provides an SPDIFO (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

| Pin | Signal Name |
|---|---|
| 1 | SPDIFOUT |
| 2 | +5V |
| 3 | Key |
| 4 | GND |

### COM: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

| Pin | Signal Name | Function |
|---|---|---|
| 1 | DCDB | Data carry detect |
| 2 | NSINB | Serial Data In |
| 3 | NSOUTB | Serial Data Out |
| 4 | DTRB | Data terminal ready |
| 5 | GND | Ground |
| 6 | DSRB | Date set ready |
| 7 | RTSB | Request to send |
| 8 | CTSB | Clear to send |
| 9 | RI | Ring Indicator |
| 10 | Key | No pin |

## *Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive*

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

### About SATA Connectors

Your motherboard features six SATA connectors supporting a total of six drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

### Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

**SATA cable (optional)**

**SATA power cable (optional)**

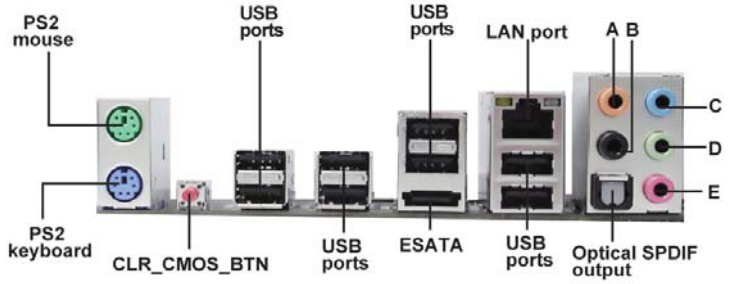
Refer to the illustration below for proper installation:

1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

*This motherboard supports the "Hot-Plug" function.*

## Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:




**PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.

**PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.

**CLR_CMOS Button** Use the CLR_CMOS button to clear CMOS.

**eSATA Port** Use this port to connect to external SATA boxes or Serial ATA port multipliers.

*Before connecting the eSATA cables, make sure to turn off the power of the external enclosure.*

**LAN Ports** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

**USB Ports** Use the USB ports to connect USB devices.

**Optical SPDIF Output** This jack connects to external optical digital audio output devices.

**Audio Ports** Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports audio devices that correspond to the A, B, and D port respectively. In addition, both of the 2 ports, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

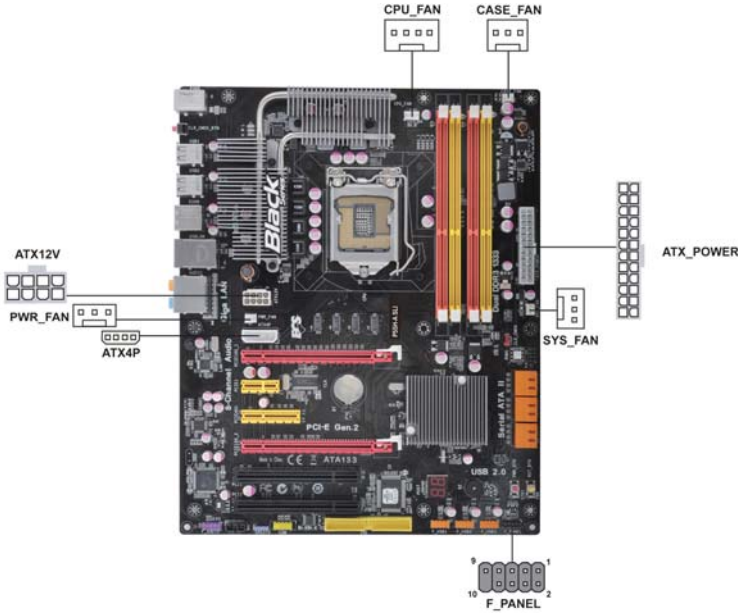
| | |
|---|---|
| A: Center & Woofer | D: Front Out |
| B: Back Surround | E: Mic_in Rear |
| C: Line-in | - |

*The above port definition can be changed to audio input or audio output by changing the driver utility setting.*

## Connecting Case Components

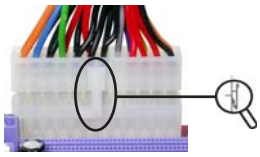
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1 Connect the CPU cooling fan cable to **CPU_FAN**.
2 Connect the system cooling fan connector to **SYS_FAN**.
3 Connect the case cooling fan connector to **CASE_FAN**.
4 Connect the power cooling fan connector to **PWR_FAN**.
5 Connect the case switches and indicator LEDs to the **F_PANEL**.
6 Connect the standard power supply connector to **ATX_POWER**.
7 Connect the connector for graphics interface to **ATX4P**.
8 Connect the auxiliary case power supply connector to **ATX12V**.




### *1. Connecting 24-pin power cable*

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.

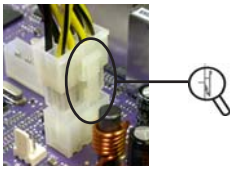


*24-pin power cable*

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

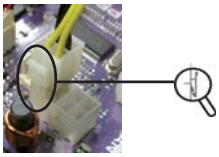
### *2. Connecting 8/4-pin power cable*

Users please note that the 8-pin and 4-pin power cables can both be connected to the ATX12V connector.



*8-pin power cable*

When installing 8-pin power cable, the latches of power cable and the ATX12V connector match perfectly.



*4-pin power cable*

When installing 4-pin power cable, the latch falls on the left side of the ATX12V connector.

### CPU_FAN: CPU cooling FAN Power Connector

| Pin | Signal Name | Function |
|---|---|---|
| 1 | GND | System Ground |
| 2 | +12V | Power +12V |
| 3 | Sense | Sensor |
| 4 | PWM | PWM |

*Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.*

### CASE_FAN/SYS_FAN: FAN Power Connectors

| Pin | Signal Name | Function |
|---|---|---|
| 1 | GND | System Ground |
| 2 | +12V | Power +12V |
| 3 | Sense | Sensor |

### ATX_ POWER: ATX 24-pin Power Connector

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | +3.3V | 13 | +3.3V |
| 2 | +3.3V | 14 | -12V |
| 3 | Ground | 15 | Ground |
| 4 | +5V | 16 | PS_ON |
| 5 | Ground | 17 | Ground |
| 6 | +5V | 18 | Ground |
| 7 | Ground | 19 | Ground |
| 8 | PWRGD | 20 | -5V |
| 9 | +5VSB | 21 | +5V |
| 10 | +12V | 22 | +5V |
| 11 | +12V | 23 | +5V |
| 12 | +3.3V | 24 | Ground |

### PWR_FAN: FAN Power Connector

| Pin | Signal Name | Function |
|---|---|---|
| 1 | GND | System Ground |
| 2 | +12V | Power +12V |
| 3 | Sense | Sensor |

### ATX12V: ATX 12V Power Connector

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | Ground | 5 | +12V |
| 2 | Ground | 6 | +12V |
| 3 | Ground | 7 | +12V |
| 4 | Ground | 8 | +12V |

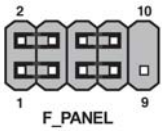
### ATX4P: Auxiliary Power Connector for Graphics Interface

| Pin | Signal Name |
|---|---|
| 1 | NC |
| 2 | GND |
| 3 | GND |
| 4 | +12V |

*Make sure to connect a 4-pin ATX power cable to ATX4P; otherwise, the system will be unstable.*

### *Front Panel Header*

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:




| Pin | Signal | Function | Pin | Signal | Function |
|---|---|---|---|---|---|
| 1 | HD_LED_P | Hard disk LED(+) | 2 | FP PWR/SLP | *MSG LED(+) |
| 3 | HD_LED_N | Hard disk LED(-) | 4 | FP PWR/SLP | *MSG LED(-) |
| 5 | RST_SW_N | Reset Switch(-) | 6 | PWR_SW_P | Power Switch(+) |
| 7 | RST_SW_P | Reset Switch(+) | 8 | PWR_SW_N | Power Switch(-) |
| 9 | RSVD | Reserved | 10 | Key | No pin |

** MSG LED (dual color or single color)*

#### *Hard Drive Activity LED*

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

#### *Power/Sleep/Message waiting LED*

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

#### *Reset Switch*

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

#### *Power Switch*

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

# Chapter 3
# *Using BIOS*

## About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

### *The Standard Configuration*

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

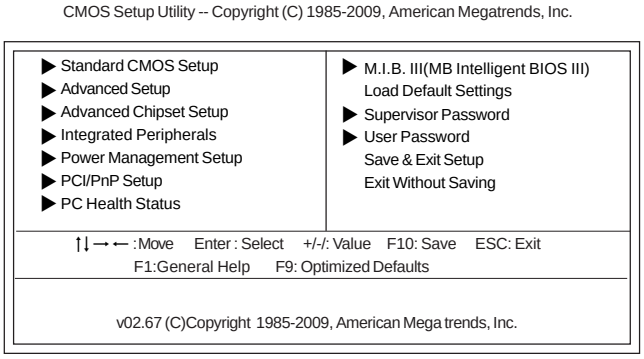
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

### *Entering the Setup Utility*

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

***Press DEL to enter SETUP***

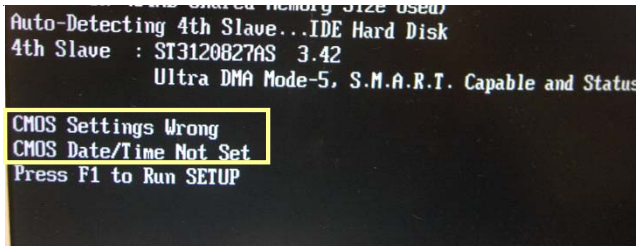
Press the delete key to access the BIOS Setup Utility.

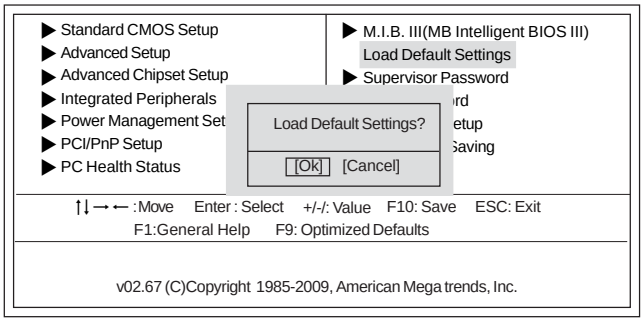

CMOS Setup Utility -- Copyright (C) 1985-2009, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Setup
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. III(MB Intelligent BIOS III)
Load Default Settings
▶ Supervisor Password
▶ User Password
Save & Exit Setup
Exit Without Saving
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.67 (C)Copyright 1985-2009, American Mega trends, Inc.

## *Resetting the Default CMOS Values*

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.


Auto-Detecting 4th Slave...IDE Hard Disk
4th Slave : ST3120827AS 3.42
Ultra DMA Mode-5, S.M.A.R.T. Capable and Status
CMOS Settings Wrong
CMOS Date/Time Not Set
Press F1 to Run SETUP


CMOS Setup Utility -- Copyright (C) 1985-2009, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Set
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. III(MB Intelligent BIOS III)
Load Default Settings
▶ Supervisor Password
Load Default Settings?
[Ok] [Cancel]
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.67 (C)Copyright 1985-2009, American Mega trends, Inc.

# Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

*The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.*

## *BIOS Navigation Keys*

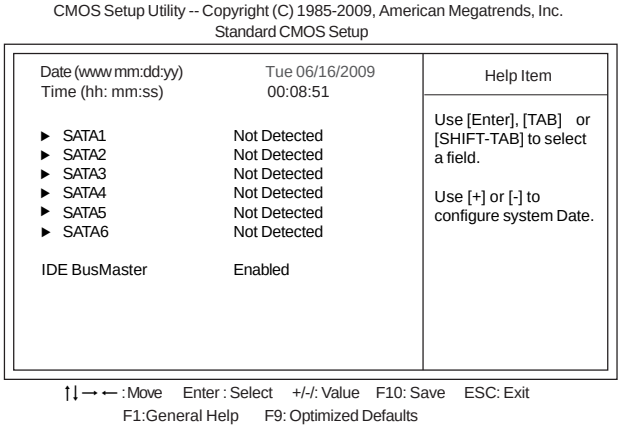
The BIOS navigation keys are listed below:

| KEY | FUNCTION |
|---|---|
| **ESC** | Exits the current menu |
| **↑↓<->** | Scrolls through the items on a menu |
| **+/-/** | Modifies the selected field's values |
| **Enter** | Select |
| **F9** | Load a default optimized setting |
| **F10** | Saves the current configuration and exits setup |
| **F1** | Displays a screen that describes all key functions |

*For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.*

## *Standard CMOS Setup*

This option displays basic information about your system.

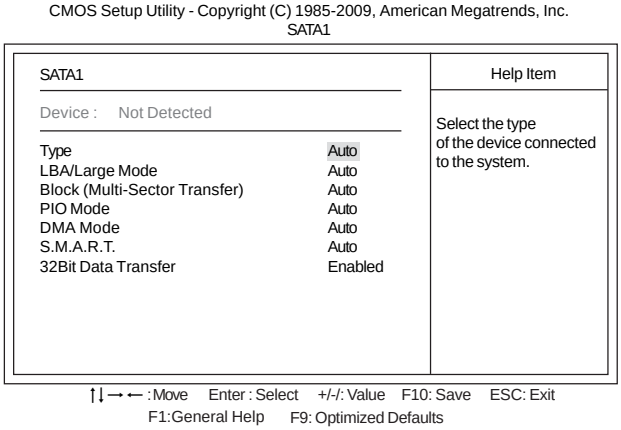

CMOS Setup Utility -- Copyright (C) 1985-2009, American Megatrends, Inc.
Standard CMOS Setup
Date (www mm:dd:yy) Tue 06/16/2009
Time (hh: mm:ss) 00:08:51
► SATA1 Not Detected
► SATA2 Not Detected
► SATA3 Not Detected
► SATA4 Not Detected
► SATA5 Not Detected
► SATA6 Not Detected
IDE BusMaster Enabled
Help Item
Use [Enter], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Date.
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

### Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### ►SATA1~6

This motherboard supports six SATA channels and each channel allows one SATA device to be installed.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
SATA1
SATA1
Device : Not Detected
Type Auto
LBA/Large Mode Auto
Block (Multi-Sector Transfer) Auto
PIO Mode Auto
DMA Mode Auto
S.M.A.R.T. Auto
32Bit Data Transfer Enabled
Help Item
Select the type of the device connected to the system.
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

***Type (Auto)***

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

***LBA/Large Mode (Auto)***

Use this item to set the LBA/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

***Block (Multi-Sector Transfer) (Auto)***

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

***PIO Mode (Auto)***

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

***DMA Mode (Auto)***

DMA capability allows users to improve the transfer-speed and data-integrity for compatible IDE devices.

***S.M.A.R.T. (Auto)***

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

***32Bit Data Transfer (Enabled)***

Use this item to enable or disable 32Bit Data Transfer.

Press <Esc> to return to the Standard CMOS Setup page.

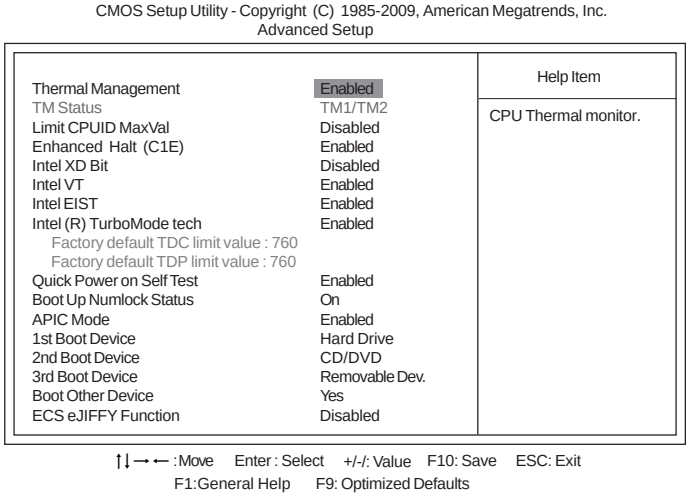
**IDE BusMaster (Enabled)**

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Press <Esc> to return to the main menu setting page.

## *Advanced Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
Advanced Setup
Help Item
CPU Thermal monitor.
Thermal Management Enabled
TM Status TM1/TM2
Limit CPUID MaxVal Disabled
Enhanced Halt (C1E) Enabled
Intel XD Bit Disabled
Intel VT Enabled
Intel EIST Enabled
Intel (R) TurboMode tech Enabled
Factory default TDC limit value : 760
Factory default TDP limit value : 760
Quick Power on Self Test Enabled
Boot Up Numlock Status On
APIC Mode Enabled
1st Boot Device Hard Drive
2nd Boot Device CD/DVD
3rd Boot Device Removable Dev.
Boot Other Device Yes
ECS eJIFFY Function Disabled
↑↓→←: Move Enter: Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

### Thermal Management (Enabled)

This item displays CPU's temperature and enables you to set a safe temperature to Prescott CPU.

### TM Status (TM1/TM2)

This item displays CPU Monitor status.

### Enhanced Halt (C1E) (Disabed)

This item enables or disables enhanced halt.

### Limit CPUID MaxVal (Disabled)

Use this item to enable or disable the Max CPU ID value limit. When suppports Prescott and LGA775 CPUs, enable this to prevent the system from "rebooting" when trying to install Windows NT 4.0.

### Enhanced Halt (C1E) (Enabled)

This item enables or disables enhanced halt (C1E).

### Intel XD Bit (Disabled)

This item allows users to enable or disable the Intel XD bit.

**Intel VT (Enabled)**

When enabled, a VMM can utilize the additional hardware capabilities provided by Vandor Pool Technology.

**Intel EIST (Enabled)**

This item allows users to enable or disable the EIST (Enhanced Intel SpeedStep technology).

**Intel (R) TurboMode tech (Enabled)**

This item enables or disables Intel TurboMode Technology support.

**Factory default TDC limit value (760)**

This item shows the factory default TDC limit value.

**Factory default TDP limit value (760)**

This item shows the factory default TDP limit value.

**Quick Power on Self Test (Enabled)**

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

**Boot Up Numlock Status (ON)**

This item defines if the keyboard Num Lock key is active when your system is started.

**APIC Mode (Enabled)**

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

**1st/2nd/3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)**

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

**Boot Other Device (Yes)**

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

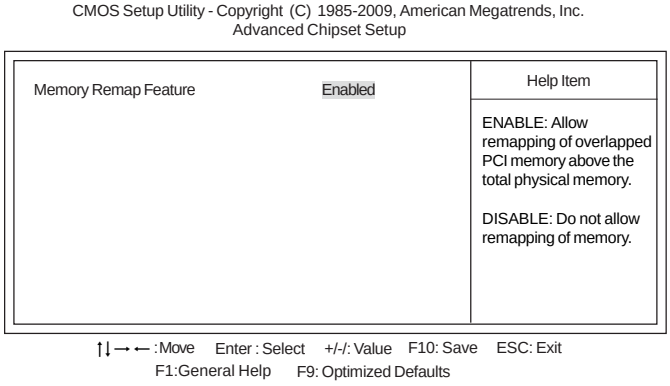
**ECS eJIFFY Function (Disabled)**

Use this item to enable or disable the ECS eJIFFY Function. eJIFFY is ECS unique software program for the quick access to the internet without entering O.S. Please refer to Chapter 8 to know more about eJIFFY.

Press <Esc> to return to the main menu setting page.

## *Advanced Chipset Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
Advanced Chipset Setup
Memory Remap Feature
Enabled
Help Item
ENABLE: Allow remapping of overlapped PCI memory above the total physical memory.
DISABLE: Do not allow remapping of memory.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

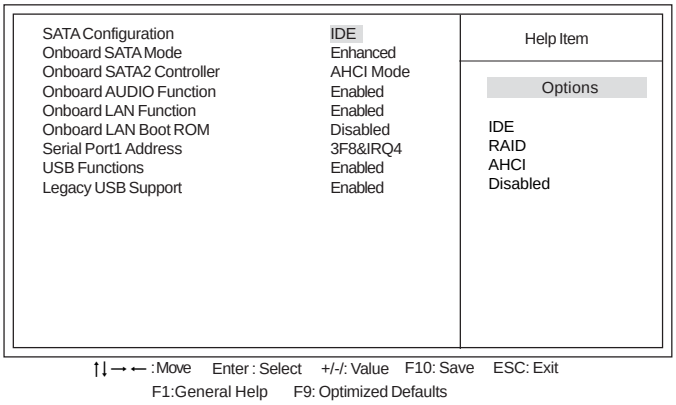
### Memory Remap Feature (Enabled)

This item allows users to enable or disable memory hole remapping.

Press <Esc> to return to the main menu setting page.

## *Integrated Peripherals*

This page sets up some parameters for peripheral devices connected to the system.




### SATA Configuration (IDE)

Use this item to show the Serial ATA Configuration options: IDE, RAID, AHCI or Disabled.

**OnBoard SATA Mode (Enhanced)**

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

**Onboard SATA2 Controller (AHCI Mode)**

Use this item to select the mode of the Onboard SATA2 Controller.

**OnBoard AUDIO Function (Enabled)**

Use this item to enable or disable the onboard Audio function.

**OnBoard LAN Function (Enabled)**

Use this item to enable or disable the onboard LAN function.

**OnBoard LAN Boot ROM (Disabled)**

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

**Serial Port1 Address (3F8/IRQ4)**

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

**USB Functions (Enabled)**

Use this item to enable or disable the USB function.

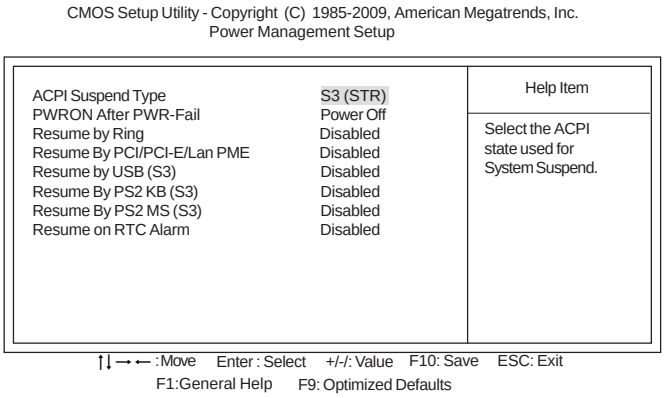
**Legacy USB Support (Enabled)**

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Press <Esc> to return to the main menu setting page.

## *Power Management Setup*

This page sets up some parameters for system power management operation.




### ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

### PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

### Resume By Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

### Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

### Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

### Resume By PS2 KB (S3) (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

### Resume By PS2 MS (S3) (Disabled)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

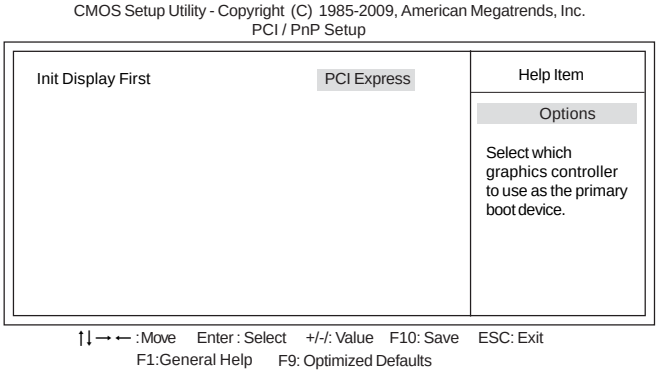
### Resume on RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

## *PCI / PnP Setup*

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
PCI / PnP Setup
Init Display First
PCI Express
Help Item
Options
Select which graphics controller to use as the primary boot device.
↑↓→←:Move Enter: Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

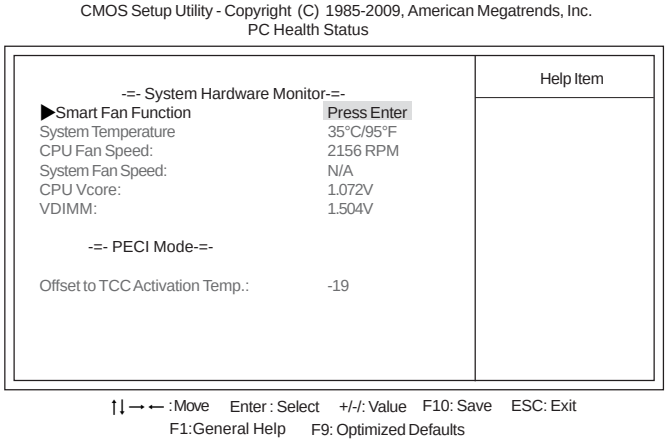
### Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

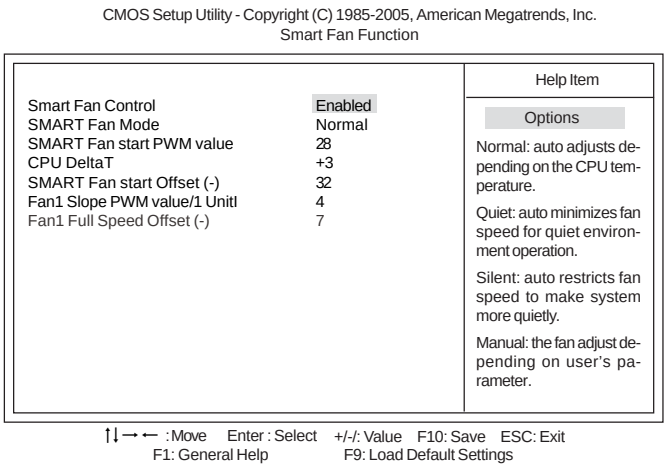
## *PC Health Status*

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.




### ▶Smart Fan Function (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

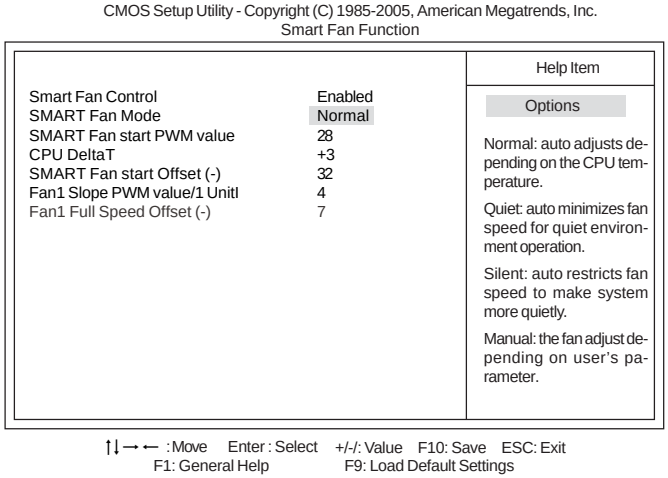

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
Help Item
Smart Fan Control
Enabled
SMART Fan Mode
Normal
SMART Fan start PWM value
28
CPU DeltaT
+3
SMART Fan start Offset (-)
32
Fan1 Slope PWM value/1 UnitI
4
Fan1 Full Speed Offset (-)
7
Options
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Load Default Settings

### ***SMART Fan Control (Enabled)***

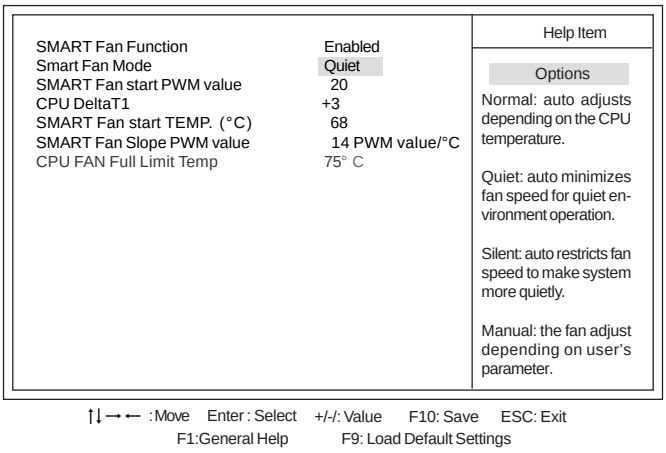
This item allows you to enable/disable the control of the CPU fan speed by changing the fan voltage.

### ***SMART Fan Mode (Normal)***

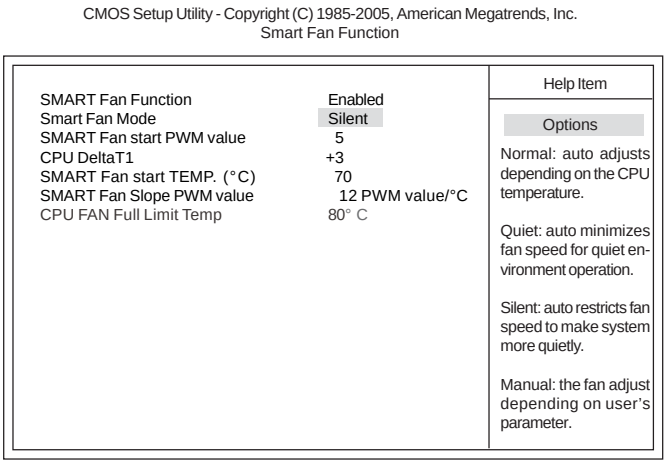
This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
Help Item
Smart Fan Control Enabled
SMART Fan Mode Normal
SMART Fan start PWM value 28
CPU DeltaT +3
SMART Fan start Offset (-) 32
Fan1 Slope PWM value/1 Unitl 4
Fan1 Full Speed Offset (-) 7
Options
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Load Default Settings

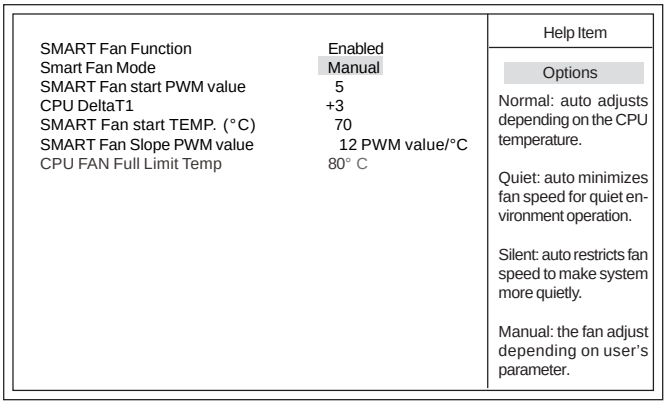
Press <Esc> to return to the Smart Fan Function page.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
Help Item
SMART Fan Function Enabled
Smart Fan Mode Quiet
SMART Fan start PWM value 20
CPU DeltaT1 +3
SMART Fan start TEMP. (°C) 68
SMART Fan Slope PWM value 14 PWM value/°C
CPU FAN Full Limit Temp 75° C
Options
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings

Press <Esc> to return to the Smart Fan Function page.

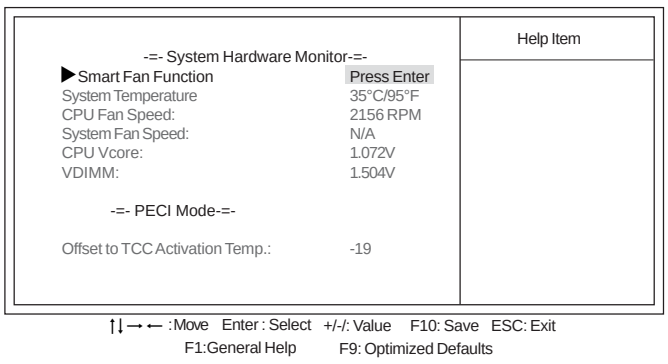

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART Fan Function Enabled
Smart Fan Mode Silent
SMART Fan start PWM value 5
CPU DeltaT1 +3
SMART Fan start TEMP. (°C) 70
SMART Fan Slope PWM value 12 PWM value/°C
CPU FAN Full Limit Temp 80° C
Help Item
Options
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings

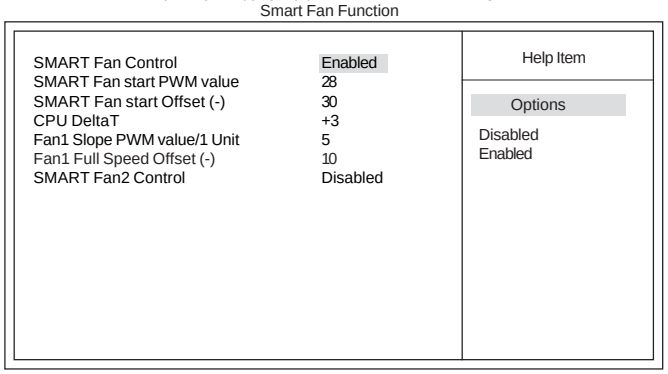
Press <Esc> to return to the Smart Fan Function page.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
SMART Fan Function Enabled
Smart Fan Mode Manual
SMART Fan start PWM value 5
CPU DeltaT1 +3
SMART Fan start TEMP. (°C) 70
SMART Fan Slope PWM value 12 PWM value/°C
CPU FAN Full Limit Temp 80° C
Help Item
Options
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings

Press <Esc> to return to the PC Health Status page.

*ECS supports the latest PECI host technology. While using Lynnfield CPU, the original images of the BIOS item "PC Health Status" and "Smart FAN Function" will be replaced by PECI mode and negative number. (The max data from PECI is zero.)*




Press <Esc> to return to the PC Health Status page.

**Shutdown Temperature (Disabled)**
Enable you to set the maximum temperature the system can reach before powering down

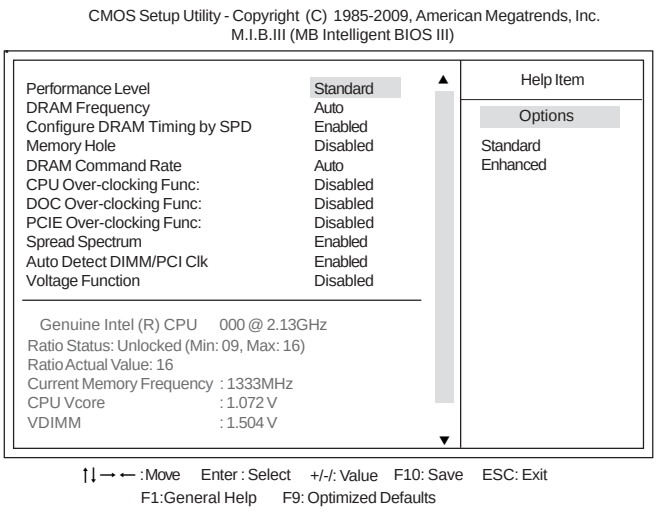
**System Component Characteristics**
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

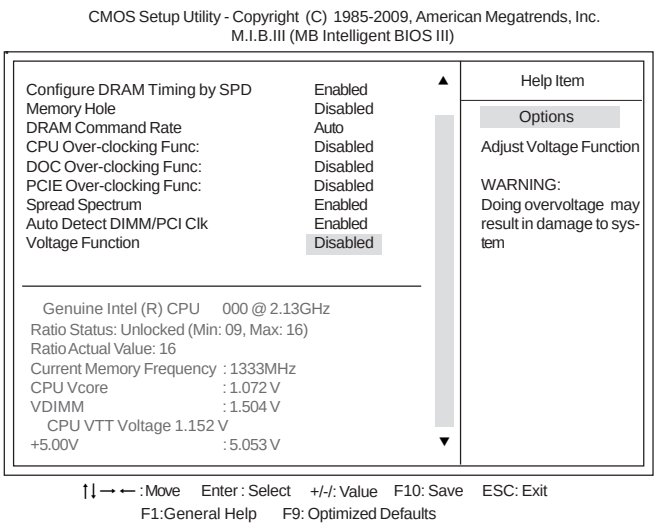
- System Temperature
- CPU Fan Speed
- System Fan Speed
- CPU Vcore
- VDIMM

Press <Esc> to return to the main menu setting page.

## *M.I.B. III (MB Intelligent Bios III)*

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
M.I.B.III (MB Intelligent BIOS III)
Performance Level Standard
DRAM Frequency Auto
Configure DRAM Timing by SPD Enabled
Memory Hole Disabled
DRAM Command Rate Auto
CPU Over-clocking Func: Disabled
DOC Over-clocking Func: Disabled
PCIE Over-clocking Func: Disabled
Spread Spectrum Enabled
Auto Detect DIMM/PCI Clk Enabled
Voltage Function Disabled
Genuine Intel (R) CPU 000 @ 2.13GHz
Ratio Status: Unlocked (Min: 09, Max: 16)
Ratio Actual Value: 16
Current Memory Frequency : 1333MHz
CPU Vcore : 1.072 V
VDIMM : 1.504 V
Help Item
Options
Standard
Enhanced
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
M.I.B.III (MB Intelligent BIOS III)
Configure DRAM Timing by SPD Enabled
Memory Hole Disabled
DRAM Command Rate Auto
CPU Over-clocking Func: Disabled
DOC Over-clocking Func: Disabled
PCIE Over-clocking Func: Disabled
Spread Spectrum Enabled
Auto Detect DIMM/PCI Clk Enabled
Voltage Function Disabled
Genuine Intel (R) CPU 000 @ 2.13GHz
Ratio Status: Unlocked (Min: 09, Max: 16)
Ratio Actual Value: 16
Current Memory Frequency : 1333MHz
CPU Vcore : 1.072 V
VDIMM : 1.504 V
CPU VTT Voltage 1.152 V
+5.00V : 5.053 V
Help Item
Options
Adjust Voltage Function
WARNING:
Doing overvoltage may result in damage to system
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

**Performance Level (Standard)**

This item shows the performance level of the components, the options are: Standard and Enhanced.

**DRAM Frequency (Auto)**

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

**Configure DRAM Timing by SPD (Enabled)**

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

**Memory Hole (Disabled)**

This item allows users to enable or disable memory hole remapping.

**DRAM Command Rate (Auto)**

This item specifies the rate of the DRAM Command.

**CPU Over-clocking Func (Disabled)**

This item decides the CPU over-clocking function installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

**DOC Over-clocking Func (Disabled)**

Use this item to enable or disable the DOCover-clocking function.

**PCIE Over-clocking Func (Disabled)**

This item enables or disables the PCIE over-clocking function.

**Spread Spectrum (Enabled)**

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

**Auto Detect DIMM/PCI Clk (Enabled)**
When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

**Voltage Function (Disabled)**
Use this item to enable or disable the Voltage Function. If enable, users can increasethe hardware voltage through BIOS settings.

**Genuine Intel (R) CPU 000 @ 2.13GHz**
This is display-only field and displays the information of the CPU installed in your computer.

**Ratio Status/Ratio Actual Value (Unlocked/16)**
These items show the locked/unlocked ratio status and the actual ratio of the CPU installed in your system.

**Current Memory Frequency (1333MHz)**
This item displays the current memory frequency.

**CPU Vcore (1.072 V)**
This item displays the current CPU voltage.

**VDIMM (1.504 V)**
This item displays theb current DIMM voltage.

**CPU VTT Voltage (1.152V)**
This item allows users to adjust the CPU VTT voltage.

*Warning: Please pay attention that doing overvoltage may result in damage to hardware.*

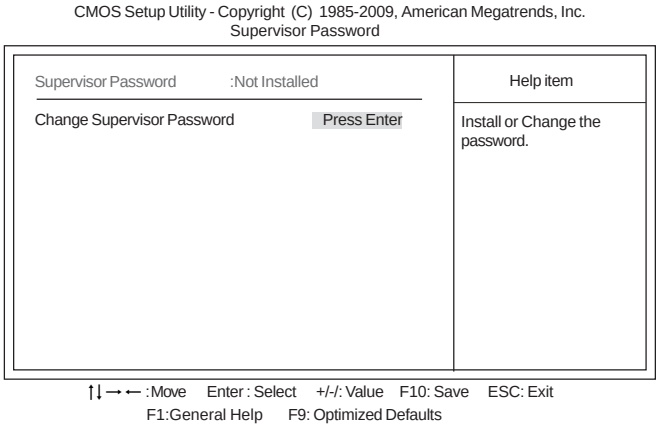
Press <Esc> to return to the main menu setting page.

### *Load Default Settings*

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

### *Supervisor Password*

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
Supervisor Password
Supervisor Password :Not Installed
Change Supervisor Password
Press Enter
Help item
Install or Change the password.
↑↓→←:Move Enter: Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

#### Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

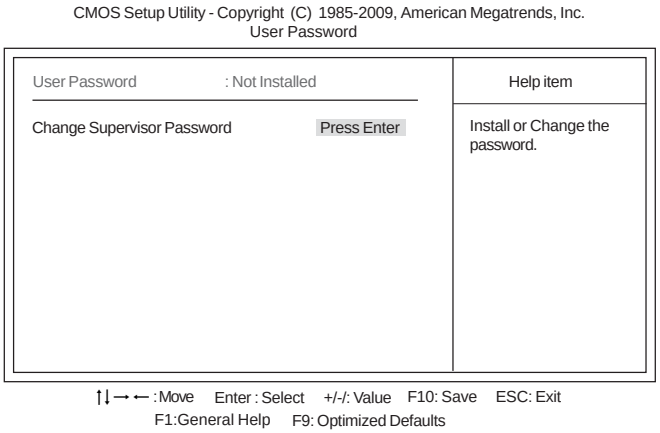
#### Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

## *User Password*

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2009, American Megatrends, Inc.
User Password
User Password : Not Installed
Change Supervisor Password Press Enter
Help item
Install or Change the password.
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

### User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

### Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use thesub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

## *Save & Exit Setup*

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

## *Exit Without Saving*

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

*If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.*

### *Updating the BIOS*

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AFUDOS.EXE 040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

*Memo*

# Chapter 4
# *Using the Motherboard Software*

## About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT, or something similar. These files may contain important information that is not included in this manual.

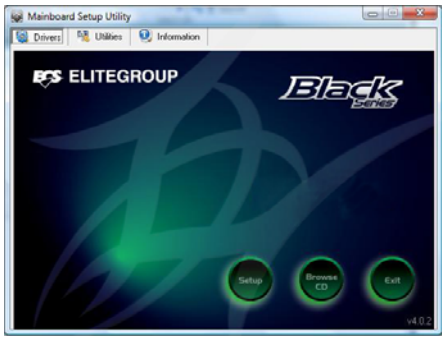
1. *Never try to install all software from folder that is not specified for use with your motherboard.*
2. *The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center before" installing HD audio driver bundled in the Driver disk. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto for more information.*

## Auto-installing under Windows XP/Vista/7

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.

*If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.*

The support software DVD-ROM/CD-ROM disk loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.




*If the opening screen does not appear; double-click the file "setup.exe" in the root directory.*

### Drivers Tab

| | |
|---|---|
| **Setup** | Click the **Setup** button to run the software installation program. Select from the menu which software you want to install. |
| **Browse CD** | The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk.<br><br>Before installing the software from Windows Explorer, look for a file named README.TXT or something similar. This file may contain important information to help you install the software correctly.<br><br>Some software is installed in separate folders for different operating systems, such as Windows XP/Vista/7. Always go to the correct folder for the kind of OS you are using.<br><br>In install the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen. |
| **Exit** | The **EXIT** button closes the Auto Setup window. |

### Utilities Tab

Lists the software utilities that are available on the disk.

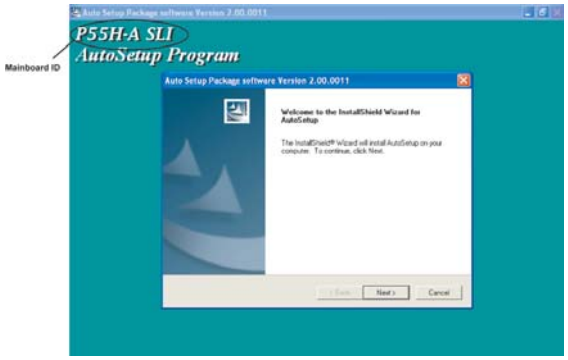
### Information Tab

Displays the path for all software and drivers available on the disk.

## *Running Setup*

*Follow these instructions to install device drivers and software for the motherboard:*

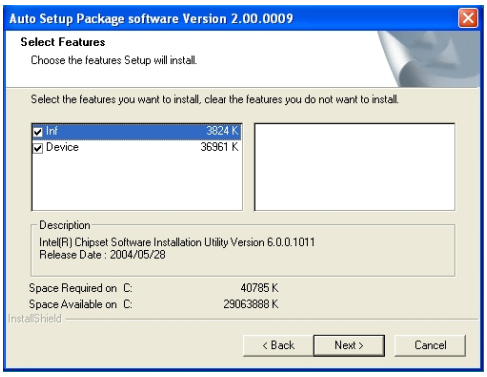
1. *Click **Setup.** The installation program begins:*




*The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.*

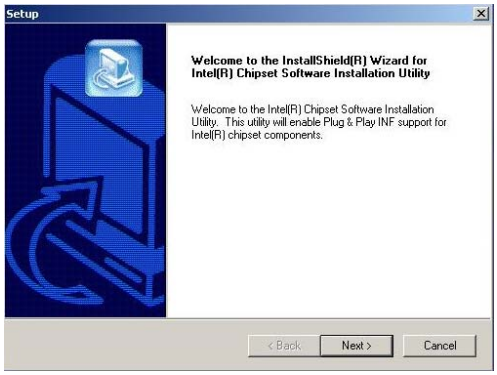
The motherboard identification is located in the upper left-hand corner.

2. *Click **Next.** The following screen appears:*


Auto Setup Package software Version 2.00.0009
Select Features
Choose the features Setup will install.
Select the features you want to install, clear the features you do not want to install.
Inf 3824 K
Device 36961 K
Description
Intel(R) Chipset Software Installation Utility Version 6.0.0.1011
Release Date : 2004/05/28
Space Required on C: 40785 K
Space Available on C: 29063888 K
InstallShield
< Back
Next >
Cancel

3. *Check the box next to the items you want to install. The default options are recommended.*

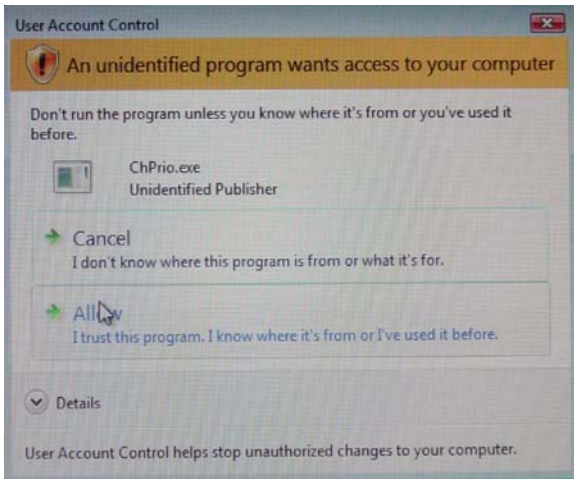
4. *Click **Next** run the Installation Wizard. An item installation screen appears:*


Setup
Welcome to the InstallShield(R) Wizard for Intel(R) Chipset Software Installation Utility
Welcome to the Intel(R) Chipset Software Installation Utility. This utility will enable Plug & Play INF support for Intel(R) chipset components.
< Back
Next >
Cancel

5. *Follow the instructions on the screen to install the items.*

*Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.*

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.


User Account Control
An unidentified program wants access to your computer
Don't run the program unless you know where it's from or you've used it before.
ChPrio.exe
Unidentified Publisher
Cancel
I don't know where this program is from or what it's for.
Allow
I trust this program. I know where it's from or I've used it before.
Details
User Account Control helps stop unauthorized changes to your computer.

## Manual Installation

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

## Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

*These software(s) are subject to change at anytime without prior notice. Please refer to the support disk for available software.*

This concludes Chapter 4.

# Chapter 5
# ATI CrossFire™ Technology Support

This motherboard supports the ATI CrossFire™ Technology that allows you to install multi-graphics processing units (GPU) graphics cards. Follow the installation procedures in this section.

## Requirements

1 You should have a CrossFire™ Ready motherboard, a CrossFire™ Edition graphics card and a CrossFire™ ready graphics card.
2 You would need a Crossfire™ bridge cable.
3 Make sure that your graphics card driver supports the ATI CrossFire™ technology. Download the latest driver from the ATI website (www.ati.com).
4 Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system.

## Installing CrossFire™ graphics cards

1. Insert the CrossFire™ graphics cards into the **PCIEX16_1** and **PCIEX16_2** slots. Make sure that the card is properly seated on the slot.

2. Connect the two graphics cards with the CrossFire™ Bridge.

3. Connect the cable from your monitors to the CrossFire™ ready graphics card installed on the **PCIEX16_1** slot.

4. Connect an auxiliary power source from the power supply to the graphics cards.

**Table A: Supported PCI Express VGA Card List for CrossFire™ Function**

| Vender | PCI-E Card | |
|---|---|---|
| ATI | MSI RX1300 TD256E (256M) | Radeon X1300Pro |
| | ATI X1600XT (256M) | Radeon X1600XT |
| | PowerColor X1900XTX (512M) | Radeon X1900XTX |
| | ASUS EAX1950PRO/HTDP/256M/A (256M) | Radeon X19500Pro |
| | MSI RX2600XT (256MB) | Radeon HD2600XT |
| | MSI RX3850-T2D256E-OC (256MB) | Radeon HD3850 |
| | POWER Color AX3870 512MD-PH | Radeon HD3870 |

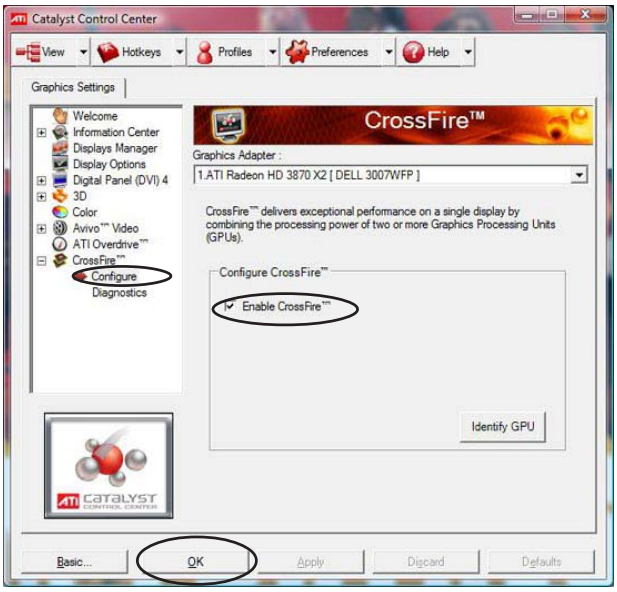
# The Catalyst™ Control Center Dialog Box

## *View*

The Catalyst™ Control Center provides two views; one is Standard view for beginners, the other is Advance view for advanced users to access and configure the complete features of the software.

### *To enable CrossFire™:*

- Set the view to **Advance**.
- Click the CrossFire™ item in Graphics Settings.
- In the CrossFire™ Setting dialog, tick the box opposite Enable CrossFire™.
- Click **OK** to effect the setting.




*Set to Advanced View to enable the CrossFire™ function.*

*Memo*

# Chapter 6
# Intel® Matrix Storage Manager RAID Configurations

The Intel® Matrix Storage Manager allows you to configure RAID 0, and 1 sets on the external Serial ATA hard disk drives.

## Before creating a RAID set

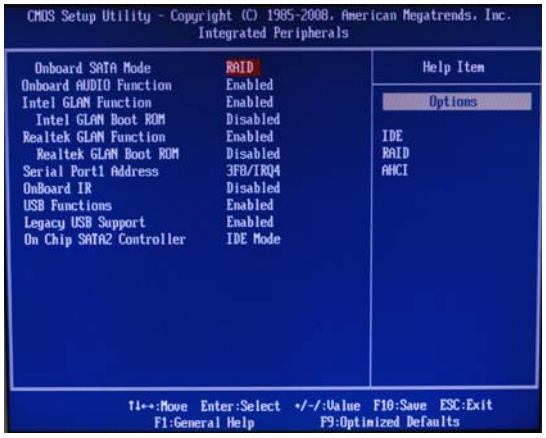
**Prepare the following items:**

1. One SATA HDD.
2. A write-enabled floppy disk.
3. Microsoft® Windows® OS installation disk (Windows XP/Vista).
4. Motherboard support CD with Intel® Matrix Storage Manager driver.

**Complete the following steps before you create a RAID set:**

1. Install the external Serial ATA hard disk drive (HDD) on your system.
2. Set the *Onboard SATA Mode* item in the BIOS to *.RAID*..

   See section “Integrated Peripherals” for details.




3. Enter the Intel® Matrix Storage Manager option to set up your RAID configuration.
4. Create an Intel® Matrix Storage Manager driver disk for Windows® OS installation. See section “Creating a RAID driver disk” for details.
5. Install the Intel® Matrix Storage Manager driver after the Windows® OS had been installed.

## Entering Intel® Matrix Storage Manager RAID BIOS utility

1. During POST, press <Ctrl-I> to enter the Intel® Matrix Storage Manager RAID BIOS menu.

Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9R wRAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.
RAID Volumes:
None defined.
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
4 Maxtor 7H500F0 H81D3FLH 465.8GB Non-RAID Disk
5 ST3500320AS 5QM0KLEY 465.8GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility...

2. The main Intel® Matrix Storage Manager RAID BIOS menu appears.

3. Use the arrow keys to move the color bar and navigate through the items.

Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9R wRAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.
[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit
[ DISK/VOLUME INFORMATION ]
RAID Volumes:
None defined.
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
4 Maxtor 7H500F0 H81D3FLH 465.8GB Non-RAID Disk
5 ST3500320AS 5QM0KLEY 465.8GB Non-RAID Disk
[↑↓]-Select [ESC]-Exit [ENTER]-Select Menu

## Creating a RAID set

1. In the main Intel® Matrix Storage Manager RAID BIOS menu, highlight *Create RAID Volume* using the up/down arrow key then press <Enter>.

2. When the *RAID Level* item is highlighted, use the up/down arrow key to select the RAID set that you want to create.

When more than two HDDs are installed in your computer, the *Disks* item will be selectable. Then users can select the HDD that you want to belong to the RAID set. Please be noticed that selecting a wrong disk will result in losing the original data of the HDD.

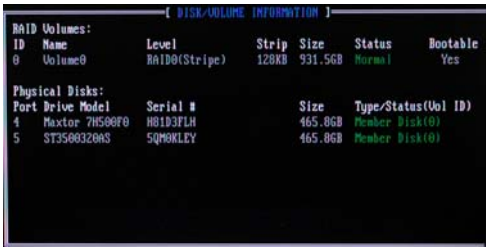
3. Key in the RAID volume capacity. Use the up/down arrow to choose the *Capacity*. The default value indicates the maximum capacity using the selected disks. Entering a lower capacity allows you to create a second volume on these disks.

4. When done, press <Enter> to confirm the creation of the RAID set. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.

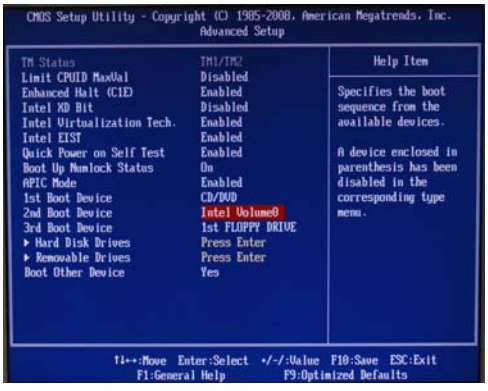
Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9R wRAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.
[ CREATE VOLUME MENU ]
Name: Volume0
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 931.5 GB
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.
Are you sure you want to create this volume? (Y/N):
Press ENTER to create the specified volume.
[↑↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

***Pressing <Y> deletes all the data in the HDDs.***

5. The following screen appears, displaying the relevant information about the RAID set you created.


[ DISK/VOLUME INFORMATION ]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID0(Stripe) 128KB 931.5GB Normal Yes
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
4 Maxtor 7H500F0 H81D3FLH 465.8GB Member Disk(0)
5 ST3500320AS 5QM0KLEY 465.8GB Member Disk(0)

Users please be noted that RAID 0 (Stripe) is set to accelerate the data access, and RAID 1 (Mirror) is set to provide the data backup. If you want to set RAID 0, you need to set the *2nd Boot Device* item in the BIOS to *Intel Volume0*. See section "Advanced Setup" for details.


CMOS Setup Utility - Copyright (C) 1985-2008, American Megatrends, Inc.
Advanced Setup
TM Status TM1/TM2
Limit CPUID MaxVal Disabled
Enhanced Halt (C1E) Enabled
Intel XD Bit Disabled
Intel Virtualization Tech. Enabled
Intel EIST Enabled
Quick Power on Self Test Enabled
Boot Up Numlock Status On
APIC Mode Enabled
1st Boot Device CD/DVD
2nd Boot Device Intel Volume0
3rd Boot Device 1st FLOPPY DRIVE
▸ Hard Disk Drives Press Enter
▸ Removable Drives Press Enter
Boot Other Device Yes
Help Item
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
↑↓←→:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9:Optimized Defaults

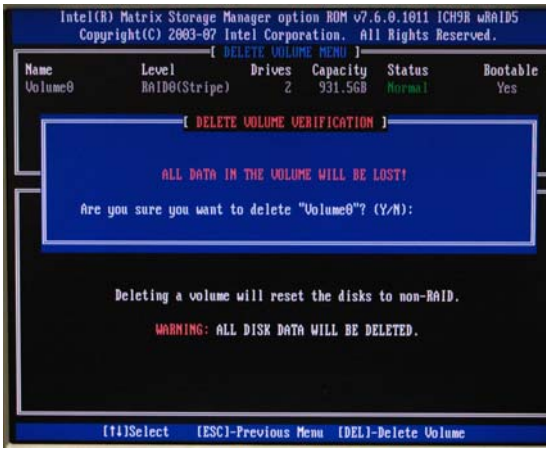
## Deleting a RAID set

1. In the main Intel® Matrix Storage Manager RAID BIOS menu, highlight *Delete RAID Volume* using the up/down arrow key then press <Enter>.

2. Use the space bar to select the RAID set you want to delete.

   Press the <Del> key to delete the set.

3. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.


Intel(R) Matrix Storage Manager option ROM v7.6.0.1011 ICH9R wRAID5
Copyright(C) 2003-07 Intel Corporation. All Rights Reserved.
[ DELETE VOLUME MENU ]
Name Level Drives Capacity Status Bootable
Volume0 RAID0(Stripe) 2 931.5GB Normal Yes
[ DELETE VOLUME VERIFICATION ]
ALL DATA IN THE VOLUME WILL BE LOST!
Are you sure you want to delete "Volume0"? (Y/N):
Deleting a volume will reset the disks to non-RAID.
WARNING: ALL DISK DATA WILL BE DELETED.
[↑↓]Select [ESC]-Previous Menu [DEL]-Delete Volume

***Pressing <Y> deletes all the data in the HDDs.***

## Resetting disks to Non-RAID

An HDD that has been previously configured as part of another RAID set in another platform is called a broken RAID HDD. When you install a broken RAID HDD, you cannot select this disk when configuring a RAID set through the Intel® Matrix Storage Manager option. If you still want to use this broken RAID HDD as part of the RAID set configured through the Intel® Matrix Storage Manager, you may do so by resetting the disk to Non-RAID. You will, however, lose all data and previous RAID configurations.

**To reset disks to Non-RAID:**

1. In the main Intel® Matrix Storage Manager RAID BIOS menu, highlight *Reset Disks to Non-RAID* using the up/down arrow key then press <Enter>.

2. Use the space bar to select the HDD to reset to Non-RAID.
3. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.

***Pressing <Y> deletes all the data in the HDDs.***

## Exiting Setup

When you have finished, highlight *Exit* using the up/down arrow key then press <Enter> to exit the Intel® Matrix Storage Manager RAID BIOS utility.

A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N> to return to the Intel® Matrix Storage Manager RAID BIOS menu.

# Chapter 7

# NVIDIA® Hybrid SLI® Technology Support

This motherboard supports the NVIDIA® Hybrid SLI® Technology.

Hybrid SLI® technology, based on NVIDIA's industry-leading SLI technology, delivers multi-GPU (graphics processing unit) benefits when an NVIDIA® motherboard GPU is combined with an NVIDIA discrete GPU. Follow the installation procedure in this section.

## Key Features

Hybrid SLI increases graphics performance with GeForce Boost® and provides intelligent power management with HybridPower™.

### *GeForce Boost*

GeForce Boost turbocharges the performance of NVIDIA discrete GPUs when combined with NVIDIA motherboard GPUs. Plug any NVIDIA Hybrid SLI-enabled GPU into any NVIDIA Hybrid SLI-enabled motherboard to enjoy additive performance and more for your money.

*Users always insert the external graphics card to boost the display efficiency when using the motherboard with onboard VGA and leave the onboard VGA unused. Hybrid SLI technology enables the inserted graphics card to operate SLI together with the onboard VGA to avoid only having efficiency of one graphics card.*

### *HybridPower*

HybridPower™ unleashes graphics performance when needed and switches to quiet, low-power quiet operation for everyday computing. Plug any NVIDIA Hybrid SLI-enabled GPU into any NVIDIA Hybrid SLI-enabled motherboard for the ultimate control. Dial up performance for demanding 3D games and applications; reduce noise and power consumption for everyday computing tasks like browsing the Web, word processing, or watching HD videos.

*1. HybridPower will unleash adequately when the system needs high graphics performance and reduce noise and power consumption automatically when the system switches to low-power quiet operation.*

*2. The HybridPower is supported when it connected to onboard display.*

## Hybrid SLI products

### *Hybrid SLI Enabled Motherboard*

| GPUs | Hybrid Power Technology | GeForce Boost Technology |
|---|---|---|
| GeForce 8300 | Yes | Yes |
| GeForce 8200 | Yes | Yes |
| GeForce 8100 | Yes | Yes |
| nForce 730a | Yes | Yes |
| nForce 720a | Yes | Yes |

### *Hybrid SLI Enabled Graphics Card*

| GPUs | Hybrid SLI Technology | |
|---|---|---|
| | Hybrid Power | GeForce Boost |
| GeForce 9800 GX2 | Yes | No |
| GeForce 9800 GTX | Yes | No |
| GeForce 8500 GT | No | Yes |
| GeForce 8400 GS | No | Yes |

*Reference Website*
*http://www.nvidia.com/object/hybrid_sli.html*.

## Hybrid Requirements and Constraints

1 You should have a Hybrid SLI Enabled Motherboard and Hybrid SLI Enabled Graphics Card.

2 Hybrid SLI is supported with the Vista/7 operating system.

3 GeForce Boost mode allows up to two displays to be connected to either mGPU or to the dGPU. When displays are connected to both adapters, hybrid mode is disabled and multi adapter extended desktop mode is enabled. In the multi-adapter extended desktop mode, up to four displays could be connected (up to two displays driven by mGPU and up to two displays by dGPU).

4 HybridPower mode requires displays to be connected to the mGPU. HybridPower cannot be enabled when displays are driven through the dGPU.

5 Hybrid SLI requires at least 256 MB of frame buffer carve out for the motherboard GPU. Hybrid SLI will not work if the frame buffer size is set to be less than 256 MB.

6 For best GeForce Boost performance, the following minimum system configuration is recommended:

- AMD Phenom CPU or Intel CPU run-ning at FSB 1333 MHz
- 2 × 1024 MB of DDR2-800 DRAM
- Discrete GPU recommended for GeForce Boost

7 Visit the ECS website (www.ecs.com.tw) for for more information of this motherboard.

8 Make sure that your graphics card driver supports the NVIDIA® Hybrid SLI® Technology. Download the latest driver from the NVIDIA website (www.nvidia.com). Or visit this website (http://www.nvidia.com/object/hybrid_sli.html) for more Hybrid SLI information.

9 Make sure that your power supply unit (PSU) can provide at least the minimum power required by your system.

10 NVIDIA requires that customers update their current inventory and future builds of GeForce 8400 GS / 8400 cards using VBIOS version 62.98.29.00.00 or later.

## Installation and Use

1. Prepare one Hybrid SLI enabled graphics card.

2. Insert the Hybrid SLI enabled graphics card into the **PCIEX16** Slot on the motherboard.

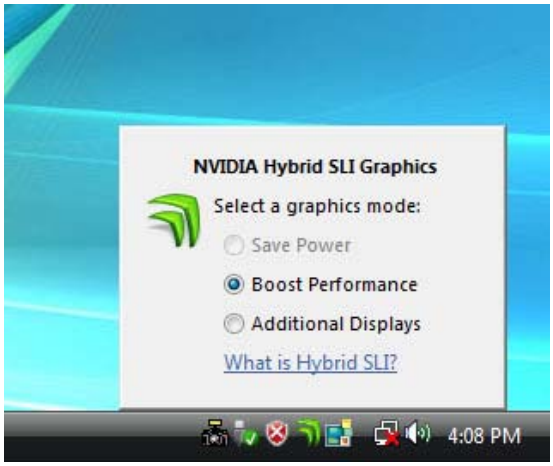
5. Enter Window Vista/7 to install the latest driver which supports the NVIDIA Hybrid SLI technology.

6. Restart your computer after installing the driver. You can see the green icon of NVIDIA Hybrid SLI in the bottom right-hand corner while accessing the Windows Vista again.

7. Click the green Hybrid SLI icon, then the choosing menu appears.

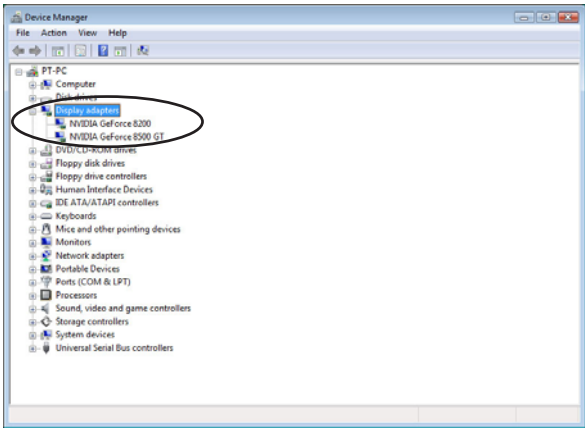
   Select a graphics mode.

   There are three SLI modes for you to select: Save Power, Boost Performance and Additional Displays.




*Whether the Save Power and Boost Performace can be used depends on the graphics card being inserted.*

8. Click with your right mouse button on *My Computer*, then click the option *Manage* and choose the *Device Manager,* finally, click the *Display Adapters*. The following screen appears.




All in all, the NVIDIA SLI technology works.

This concludes Chapter 7.

*Memo*

# Chapter 8
# *Setting Up eJIFFY*

## Introduction

eJIFFY is a fast boot program under Linux. Instead of waiting Windows O.S to start execution, eJIFFY is ready to provide users the instant enjoyment on web browsing, photo review and online chat just within several seconds after boot up.

Note: eJIFFY is ECS ***optional*** feature utility corresponding to the DVD activation and BIOS setup. Please check the hard copy user's guide or product color-box to see if the model has embodded eJIFFY feature. (eJIFFY icon on color-box )

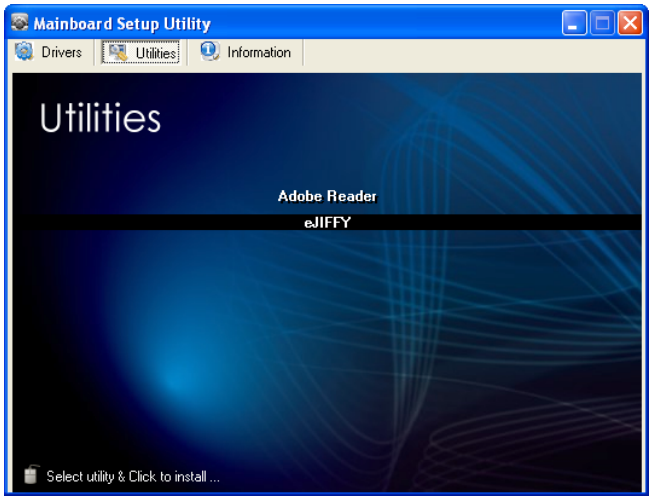
Version: 5.0

# Installation and BIOS Setup

## *DVD Activation*

Finish the DVD utility setup, and then set the BIOS to complete eJIFFY activation.

1. Insert ECS software utility DVD and enter below “Utilities” screen. Click eJIFFY feature item to install.




2. Follow the onscreen instructions to finish eJIFFY setup.

Setup - eJIFFY
Welcome to the eJIFFY Setup Wizard
This will install eJIFFY v1.1 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

3. After setting up eJIFFY under Windows, you can switch eJIFFY display/keyboard language from English to your local language. The changes will be applied after rebooting.

Note: The keyboard language selection list offers several more regional keyboard setups to switch with the default English typing. Please refer to the usage FAQ for more tips.

4. Restart your computer after eJIFFY installation. Press <DEL> or click the BIOS Setup button on the post screen to enter the BIOS setup page after boot up.

5. And then enter the *Advanced Setup* page to enable the item *ECS eJIFFY Function*. Press F10 to save the configuration and exit. Restart your computer.

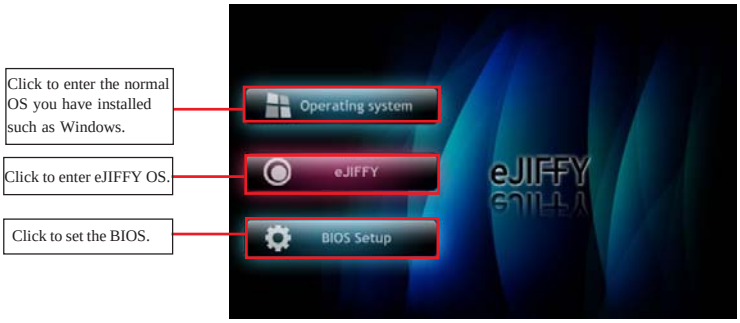
CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Advanced Setup
HT Frequency Auto Auto
AMD C8Q Enabled
Quick Power on Self Test Enabled
Boot Up Numlock Status On
LOGO Display Enabled
APIC Mode Enabled
1st Boot Device ARY01 NVIDIA SPAN 1
2nd Boot Device CD/DVD
3rd Boot Device Removable Dev.
Hard Disk Drives Press Enter
Boot Other Device Yes
ECS eJIFFY Function Enabled
Restore Default Settings No
Help Item
Options
Disabled
Enabled
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9:Load Default Settings

Note: 1. eJIFFY is available in SATA/IDE/AHCI mode. It does not support RAID configuration and the onboard 34-pin floppy drives.

2. Please refer to ECS website for new eJIFFY application updates.

## Entering eJIFFY

The post screen appears within several seconds after boot up and it has three buttons on it, Operating system, eJIFFY and BIOS Setup.


Click to enter the normal OS you have installed such as Windows.
Click to enter eJIFFY OS.
Click to set the BIOS.
Operating system
eJIFFY
BIOS Setup
eJIFFY

If you click eJIFFY, the following screen will appear. And If you make no choice it will enter the normal OS automatically after ten seconds.

## Feature Icons

The following illustration shows the main feature icons that eJIFFY provides on the menu.

*eWeb: Firefox for web browsing/webmail and watching flash video.*

*ePix: Photo viewing.*

*ePal: On-line chat tool to use the most popular IMs in the world. (MSN, ICQ, AIM, etc.)*

*Shows ePal on-line connection status.*

*Shut Down/Restart: Ends your session and turns off the computer./Ends your session and restart the computer..*

*Click once to connect the storage disk to your computer. Click for the second time to remove your storage disk safely. (please refer to the FAQ for more usage information.)*

*Shows the network connection status.*

*Language Control Panel*

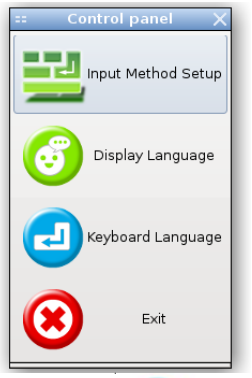
*Switch Keyboard Languages*

## Usage FAQ

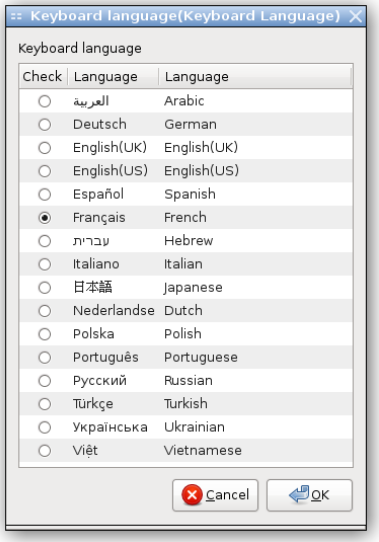
*Language Control Panel: Besides setting English as the default interface, eJIFFY offers multi-language displays and keyboard settings for language-switch. Open the language control panel to select a preferable language setting.*

### Keyboard Language Setup

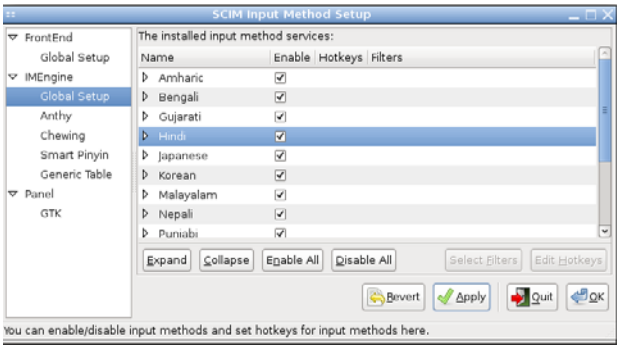
Step1. Click to open the language control panel.

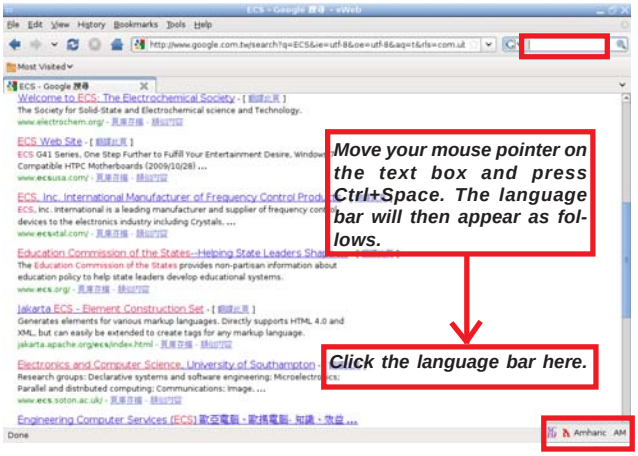



Step 2: Click “Keyboard Language” icon to open the keyboard selection list, which offers several regional keyboard settings besides default English keyboard.
Step 3: Click the selected keyboard language (e.g. French) and press “OK”.



Click to enable all possible language inputs you want to apply, and click "Apply":

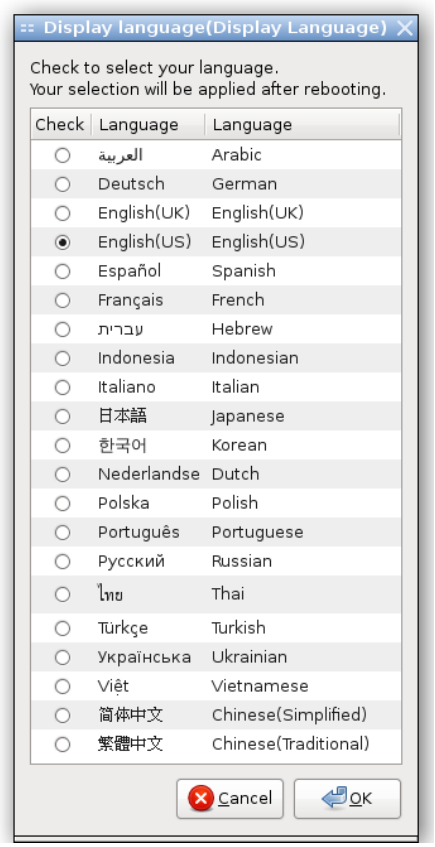



Select your desired language

### How to change display language?

Open the Language Control Panel and click to show the display language list. Check your desired display language. Your selected display language will be applied after rebooting.




Note: *Details about eJIFFY please refer to eJIFFY in disk.*

## Memo

# Chapter 9
# *Trouble Shooting*

## Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

### *a) System does not power up and the fans are not running.*

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

### *b) Power is on, fans are running but there is no display*

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

### *c) The PC suddenly shuts down while booting up.*

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

## Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

## Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

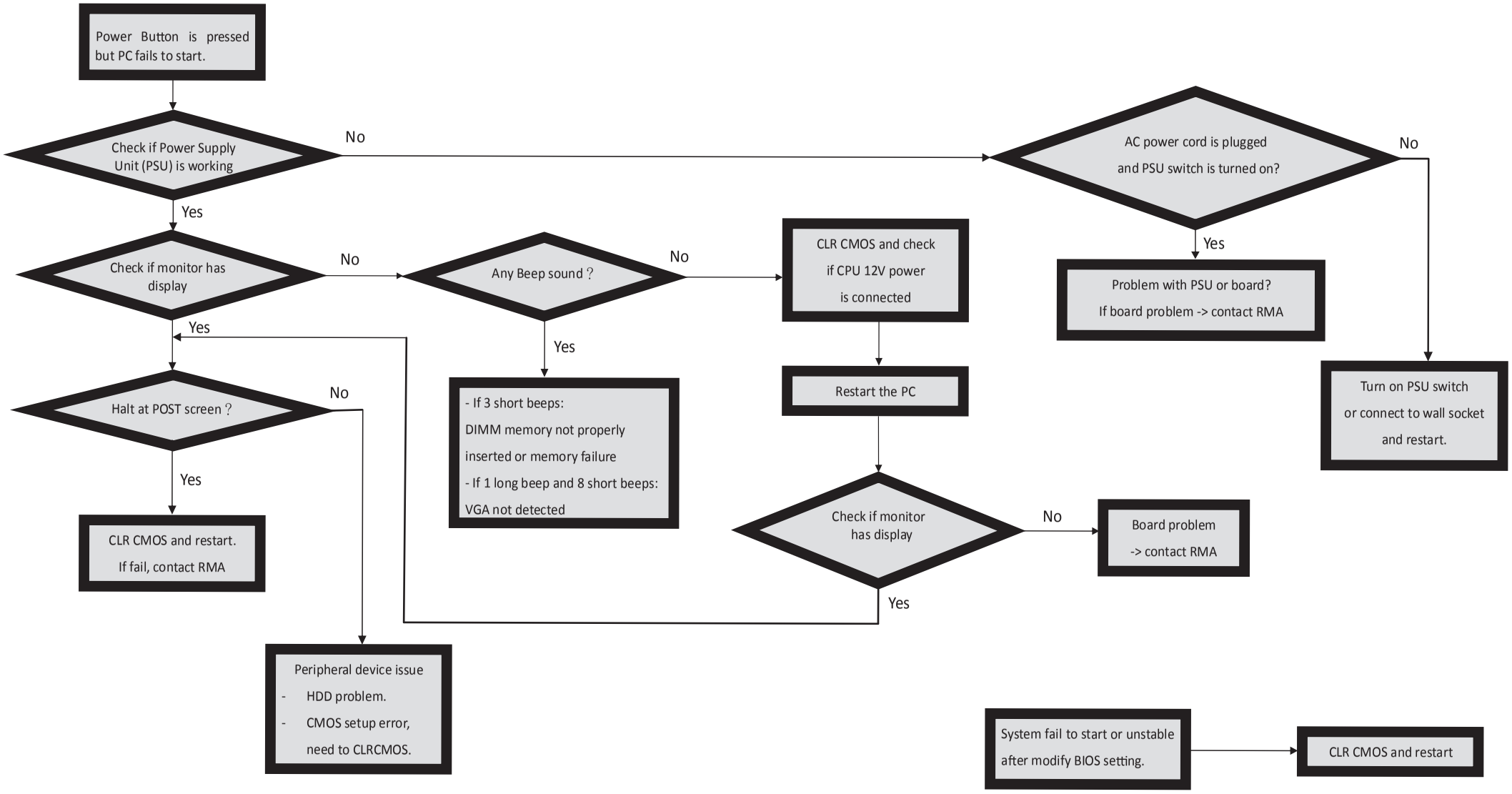
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

# Basic Troubleshooting Flowchart


Power Button is pressed but PC fails to start.
Check if Power Supply Unit (PSU) is working
No
AC power cord is plugged and PSU switch is turned on?
No
Yes
Problem with PSU or board? If board problem -> contact RMA
Turn on PSU switch or connect to wall socket and restart.
Yes
Check if monitor has display
No
Any Beep sound ?
No
CLR CMOS and check if CPU 12V power is connected
Yes
- If 3 short beeps: DIMM memory not properly inserted or memory failure
- If 1 long beep and 8 short beeps: VGA not detected
Restart the PC
Yes
Halt at POST screen ?
No
Yes
CLR CMOS and restart. If fail, contact RMA
Check if monitor has display
No
Board problem -> contact RMA
Yes
Peripheral device issue
- HDD problem.
- CMOS setup error, need to CLRCMOS.
System fail to start or unstable after modify BIOS setting.
CLR CMOS and restart

## Memo

## POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS :

| Checkpoint | Description |
|---|---|
| 03 | Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags." |
| 04 | Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A.<br>Initializes data variables that are based on CMOS setup questions.<br>Initializes both the 8259 compatible PICs in the system |
| 05 | Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table. |
| 06 | Do R/W test to CH-2 count reg. Initialize CH-0 as system timer.Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt.<br>Traps INT1Ch vector to "POSTINT1ChHandlerBlock." |
| 08 | Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5. |
| C0 | Early CPU Init Start -- Disable Cache - Init Local APIC |
| C1 | Set up boot strap processor Information |
| C2 | Set up boot strap processor for POST |
| C5 | Enumerate and set up application processors |
| C6 | Re-enable cache for boot strap processor |
| C7 | Early CPU Init Exit |
| 0A | Initializes the 8042 compatible Key Board Controller. |
| 0B | Detects the presence of PS/2 mouse. |
| 0C | Detects the presence of Keyboard in KBC port. |
| 0E | Testing and initialization of different Input Devices. Also, update the Kernel Variables.<br>Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules. |
| 13 | Early POST initialization of chipset registers. |
| 24 | Uncompress and initialize any platform specific BIOS modules. |
| 30 | Initialize System Management Interrupt. |
| 2A | Initializes different devices through DIM.<br>See *DIM Code Checkpoints* section of document for more information. |
| 2C | Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs. |
| 2E | Initializes all the output devices. |
| 31 | Allocate memory for ADM module and uncompress it. Give control to ADM |

| | |
|---|---|
| | module for initialization. Initialize language and font modules for ADM. Activate ADM module. |
| 33 | Initializes the silent boot module. Set the window for displaying text information. |
| 37 | Displaying sign-on message, CPU information, setup key message, and any OEM specific information. |
| 38 | Initializes different devices through DIM. See *DIM Code Checkpoints* section of document for more information. |
| 39 | Initializes DMAC-1 & DMAC-2. |
| 3A | Initialize RTC date/time. |
| 3B | Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system. |
| 3C | Mid POST initialization of chipset registers. |
| 40 | Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, … etc.) successfully installed in the system and update the BDA, EBDA…etc. |
| 50 | Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed. |
| 52 | Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory. |
| 60 | Initializes NUM-LOCK status and programs the KBD typematic rate. |
| 75 | Initialize Int-13 and prepare for IPL detection. |
| 78 | Initializes IPL devices controlled by BIOS and option ROMs. |
| 7A | Initializes remaining option ROMs. |
| 7C | Generate and write contents of ESCD in NVRam. |
| 84 | Log errors encountered during POST. |
| 85 | Display errors to the user and gets the user response for error. |
| 87 | Execute BIOS setup if needed / requested. |
| 8C | Late POST initialization of chipset registers. |
| 8D | Build ACPI tables (if ACPI is supported) |
| 8E | Program the peripheral parameters. Enable/Disable NMI as selected |
| 90 | Late POST initialization of system management interrupt. |
| A0 | Check boot password if installed. |
| A1 | Clean-up work needed before booting to OS. |
| A2 | Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed. |
| A4 | Initialize runtime language module. |
| A7 | Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's. |
| A8 | Prepare CPU for OS boot including final MTRR values. |
| A9 | Wait for user input at config display if needed. |
| AA | Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module. |
| AB | Prepare BBS for Int 19 boot. |
| AC | End of POST initialization of chipset registers. |
| B1 | Save system context for ACPI. |
| 00 | Passes control to OS Loader (typically INT19h). |
| 61-70 | OEM POST Error. This range is reserved for chipset vendors & system manufacturers. The error associated with this value may be different from one platform to the next. |